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AUGUST 1932

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AUGUST NINETEEN THIRTY-TWO



A New Skyscraper of the Southwest

MANUFACTURERS RECORD

Devoted to the Upbuilding of the
Nation Through the Development
of the South and Southwest as the
Nation's Greatest Material Asset

Published Monthly

by the

**MANUFACTURERS RECORD
PUBLISHING CO.**

Frank Gould, President

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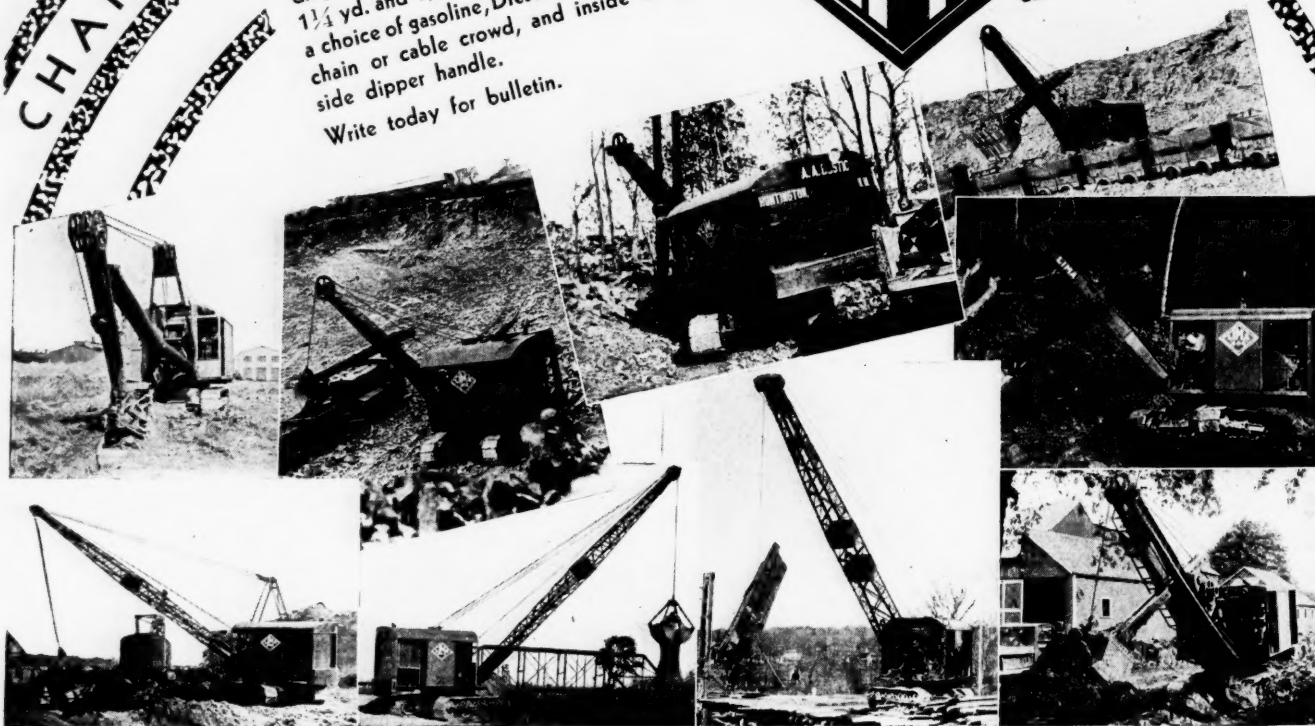
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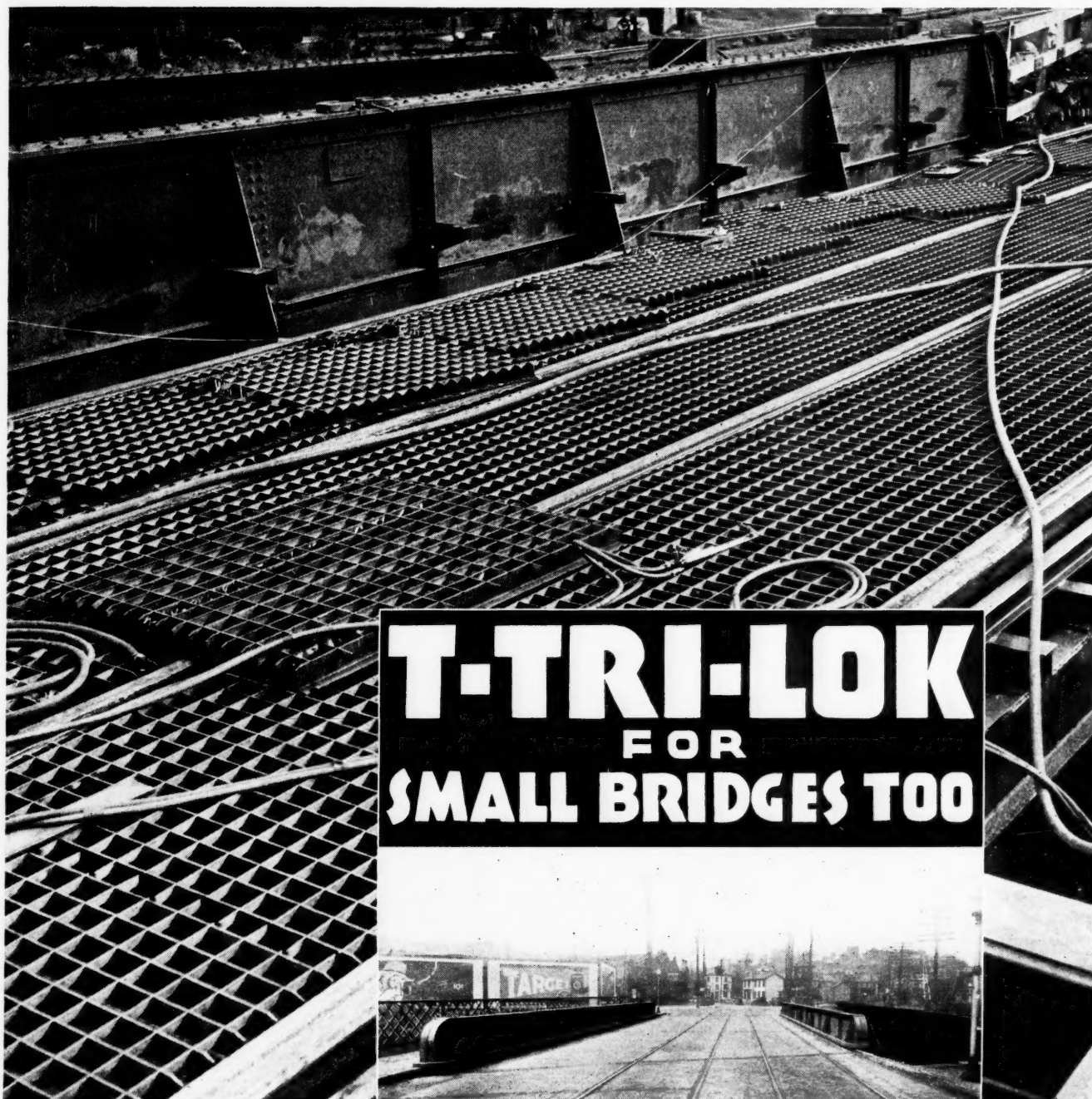
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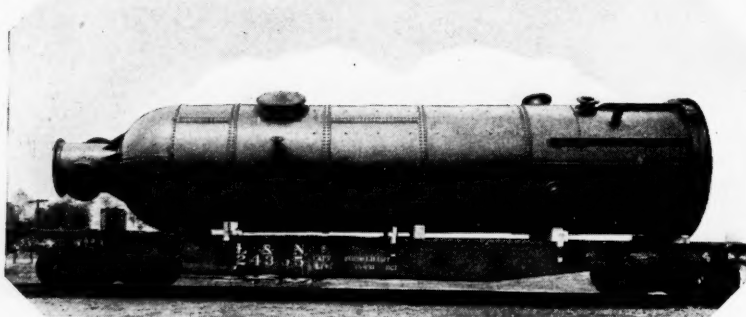
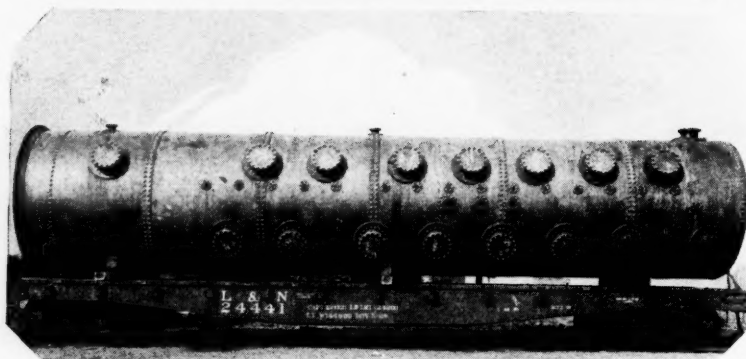
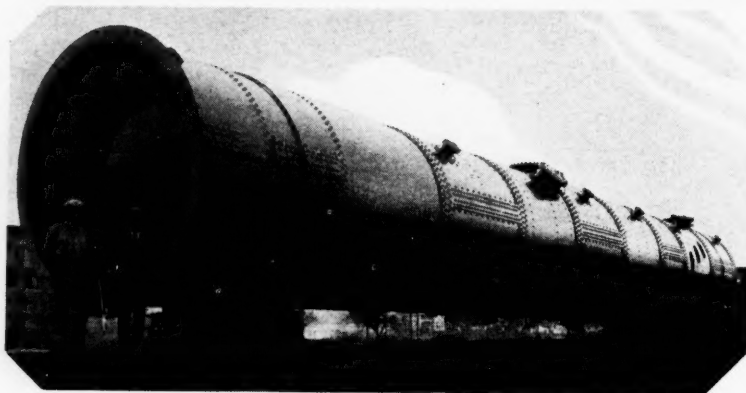
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183

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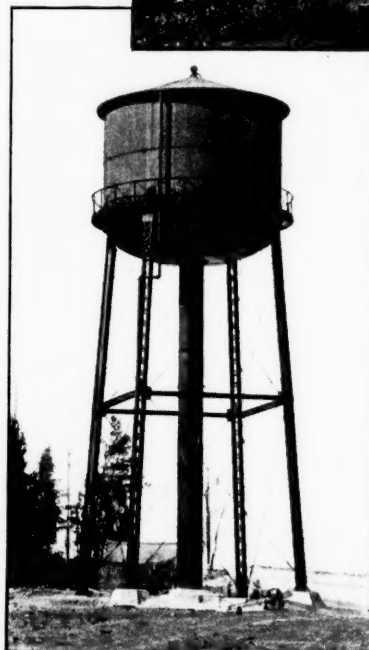
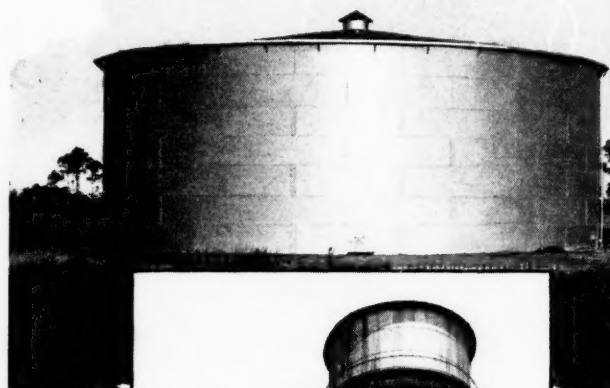
THE LORAIN STEEL COMPANY

TENNESSEE COAL, IRON & R. R. COMPANY

UNIVERSAL ATLAS CEMENT COMPANY

Export Distributors—United States Steel Products Company, 30 Church Street, New York, N. Y.

Right: 60,000-gal. washwater tank at a filtration plant at a Southern city. Below: 3,250,000-gal. Horton tank used by the Pinellas Water Company, St. Petersburg, Fla. to store a large reserve at ground level.



Above: Horton ellipsoidal-bottom tanks at Longview, Tex.

Left: This is one of two 50,000-gal. Horton tanks which supply water for the sewage disposal plants at Spartanburg, S.C.

STEEL TANKS for Municipal Service

Horton steel tanks are used for municipal service by a great many cities throughout the South. The accompanying illustrations show a number of typical installations.

Elevated tanks are generally used in distribution systems to maintain uniform pressures and to reduce operating costs. Pumping equipment is operated at a uniform rate and the tank takes care of variations in demand. The savings made by not having to increase the pressure at peak load periods and in some instances by shutting down pumping equipment altogether for a time at night often pay the cost of elevated tanks in a short time.

Elevated tanks are also used for special purposes, such as providing washwater at filtration plants and water for general service at disposal plants.

Flat bottom storage tanks are utilized where a large quantity of water is held in reserve at ground level.

We will appreciate the opportunity of working with municipal officials or engineers when they are contemplating improvements in municipal waterworks systems. Write our nearest office if we may be of service to you.

B-308

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Boston.....1510 Consolidated Gas Bldg.
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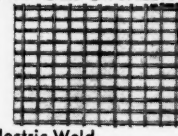
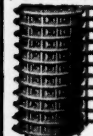
HORTON TANKS

AUGUST NINETEEN THIRTY-TWO

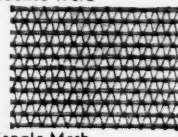


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THE STEEL BACKBONE
OF CONCRETE

Greater Permanence and Safety

American Steel & Wire Company Wire Fabric Reinforcement is finding its way into more and more important structural developments every day. For example, in the erection of the New York Life Insurance Building this Wire Fabric was used throughout to reinforce the concrete floors, guaranteeing longer service and greater safety. Leading Architects and Engineers now specify American Steel & Wire Company Wire Fabric when preparing their plans. Hundreds of highly satisfactory installations prove the wisdom of their specifications.

1831



1932

AMERICAN STEEL & WIRE COMPANY

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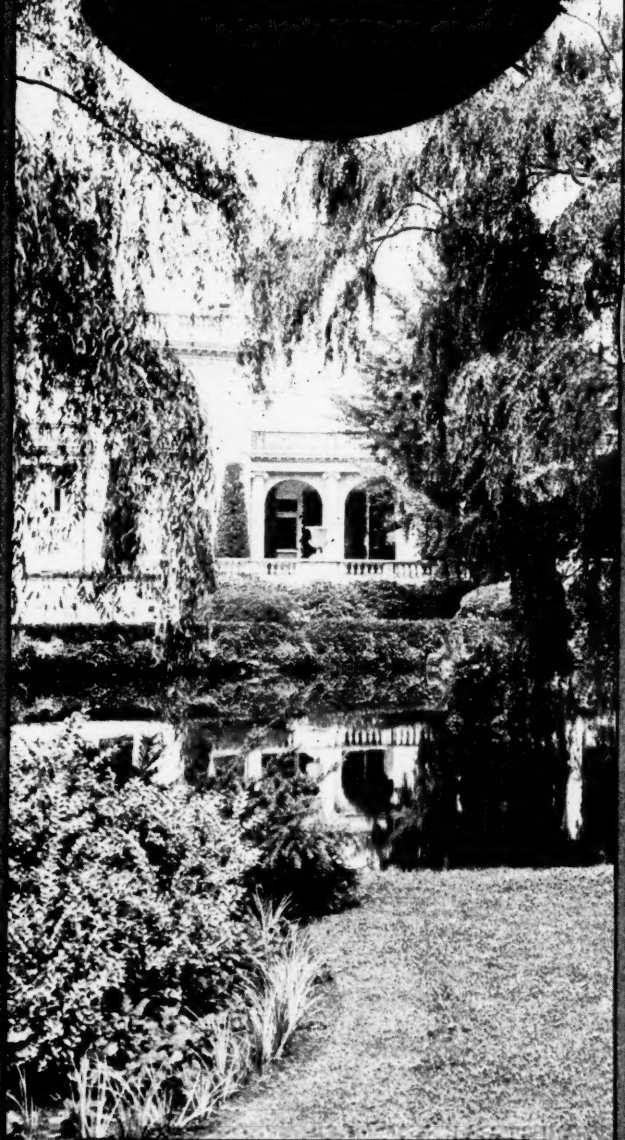
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WINDOWS
make
more
beautiful
homes**



**PennVERNON
WINDOW GLASS**



AS a designer of homes, you know the importance of windows in beautifying an architectural creation. The spacing of the windows, their location, their shape, their size—all these affect very definitely the architectural beauty of the finished structure. Scarcely any other feature of a house can do so much to mar or enhance its appearance.

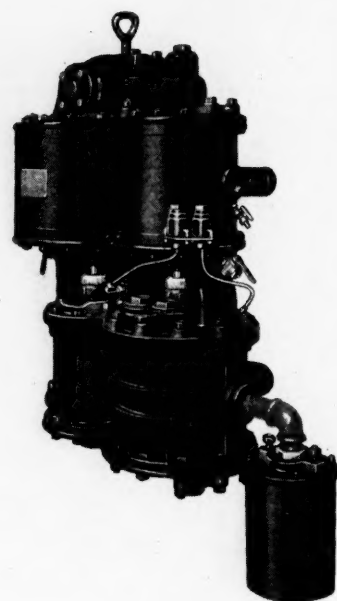
If windows are of such importance, equally important is the glass with which they are glazed. No window can perform its beautifying function completely unless it is glazed with the finest glass—clear, brightly finished and highly reflective.

Thousands of architects, builders and homeowners have discovered that Pennvernon Window Glass is just such a glass. The special manufacturing process by which it is made gives Pennvernon new transparency and new brilliance of finish on both sides of the sheet. It can be glazed either side out. It brings outdoor beauty into the home clearly, in fine detail, in bright natural colors. And its high luster gives it reflective qualities surpassed only by those of fine plate glass.

Pennvernon is well worth your investigation. This clearer, brighter glass makes better windows—and better windows make more beautiful homes. Pennvernon is available in single or double strength and in $\frac{3}{16}$ " and $\frac{7}{32}$ " thicknesses, at the warehouses of the Pittsburgh Plate Glass Company in all leading cities, through progressive glass jobbers and through leading sash and door manufacturers. Write us for samples. Pittsburgh Plate Glass Company, Grant Building, Pittsburgh, Pa.



The Westinghouse Cross Compound Air Compressor, 150 cu. ft. displacement,—economical in use of steam as air is compressed in two stages and steam is compounded.



TOLMAN LAUNDRY PRESSES get AIR from WESTINGHOUSE COMPRESSORS

Among the hundreds of laundries that use Westinghouse Compressors to supply air for pneumatic presses is the Tolman Laundry, Washington, D. C.—a new plant with modern equipment. The 28 garment presses and 15 collar and cuff presses receive air from a steam driven Westinghouse compressor. This machine has ample air capacity to take care of present needs, with a margin for possible future expansion. It is well built, dependable in operation, and economical.

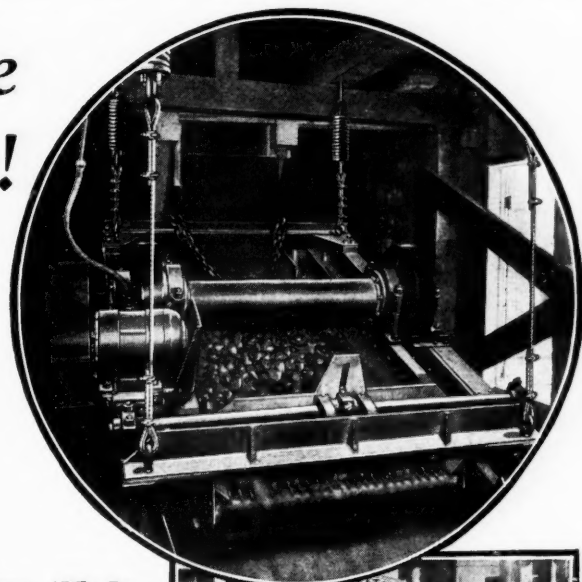
WESTINGHOUSE TRACTION BRAKE CO.
Industrial Division Pittsburgh, Pa.

WESTINGHOUSE AIR COMPRESSORS

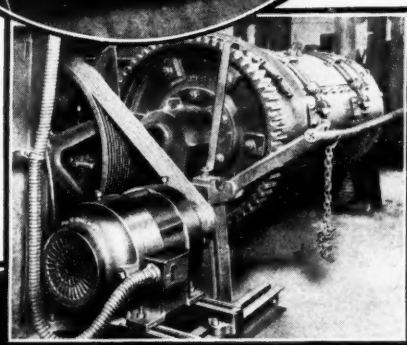
Ask Your Maintenance Man!

..where the troublesome drives in your plant are!

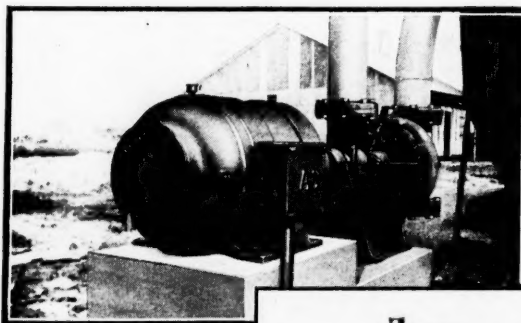
Ask him where dust, dirt, moisture, dripping water, or even destructive gases are present. Those drives in out-of-the-way places, where motor windings become clogged or moisture soaked. ... Ask him to study the Allis-Chalmers Enclosed Fan-cooled Motors, approved by the Underwriters for dusty locations, and where explosive gases are present. ... Ask him to notice how these motors have the same sturdy construction, liberal design, and unexcelled insulation, that for years have been characteristic of Allis-Chalmers motors. ... Ask him to note also, how these enclosed fan-cooled motors are as easily accessible, and with no greater number of parts, than a standard open motor. ... Ask him to write for Leaflet 2124, on the Enclosed Fan-cooled Motor, and Leaflet 2125A, on the Explosion-proof Motor.



Type ARZ Enclosed Fan-cooled Motors are used on all Allis-Chalmers Centrifugal Vibrating Screens because these motors are best protected against dust, dirt and water.

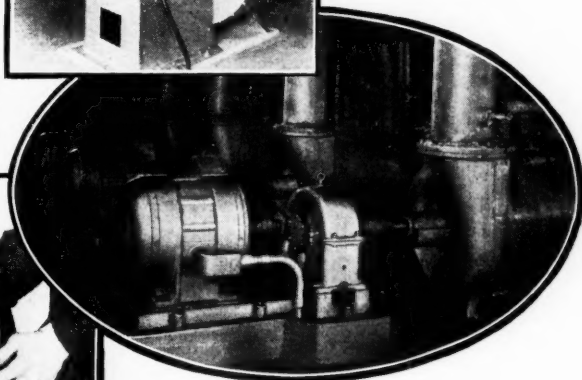
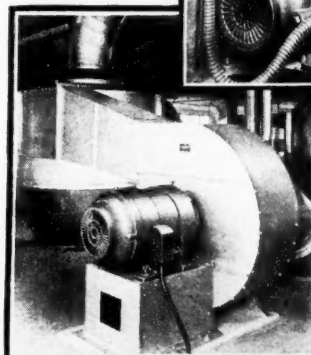


Even in a foundry atmosphere laden with iron dust and fine sand, type ARZ Motors operate without trouble. This motor operates a tumbling barrel for cleaning small iron castings.



Right — ARZ motor driving fan in a starch mill where fine dust is always present and enclosed motors are necessary for safety of operation.

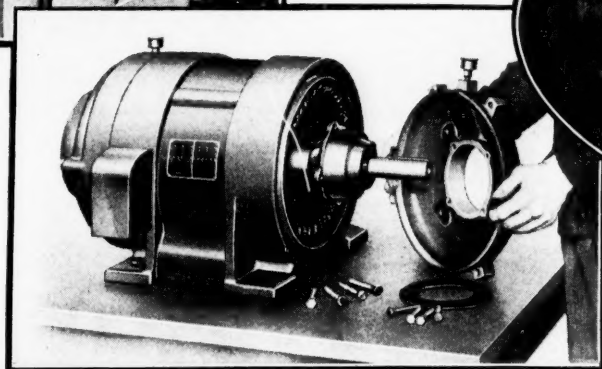
Left—Type ARZZ Explosion Proof Motor driving gasoline pump in Texas refinery. This motor saved the cost of a building and fire wall.



ARZ Motors driving rotary stock screens in a southern paper mill. This mill uses 15,000 h.p. of Allis-Chalmers motors, many of them enclosed as protection against gases, acids and water.



Allis-Chalmers Enclosed Fan - Cooled Motors are as readily accessible as those of the open type.



ALLIS-CHALMERS

— Allis-Chalmers Manufacturing Company, Milwaukee —

BEWARE OF STALE GASOLINE

*the longer it loafs
the staler it gets*



Only Fresh Gasoline Packs Full Power!

The entire petroleum industry has long sought a way to halt gasoline deterioration. Now, by radical advances in refining and distributing, Gulf assures you of get-

ting FRESH, full-powered gasoline. Get FRESH-MADE, power-packed gasoline. Get Gulf and nothing else. Your motor will be cleaner. Quieter. Faster.

Get—THAT GOOD GULF GASOLINE

It's FRESH





New LAPEL microphone frees speaker from his "fixed post!"



No longer must the speaker keep close to the microphone. The newest Western Electric microphone *keeps close to him!* It's worn right on his lapel, letting him move about the platform and drive home his points with complete freedom of action. Used with Western Electric public address equipment, it makes his voice easy to hear in every part of a large hall or outdoor meeting. In picking up the sound, in amplifying it, in delivering it, there is no distortion.

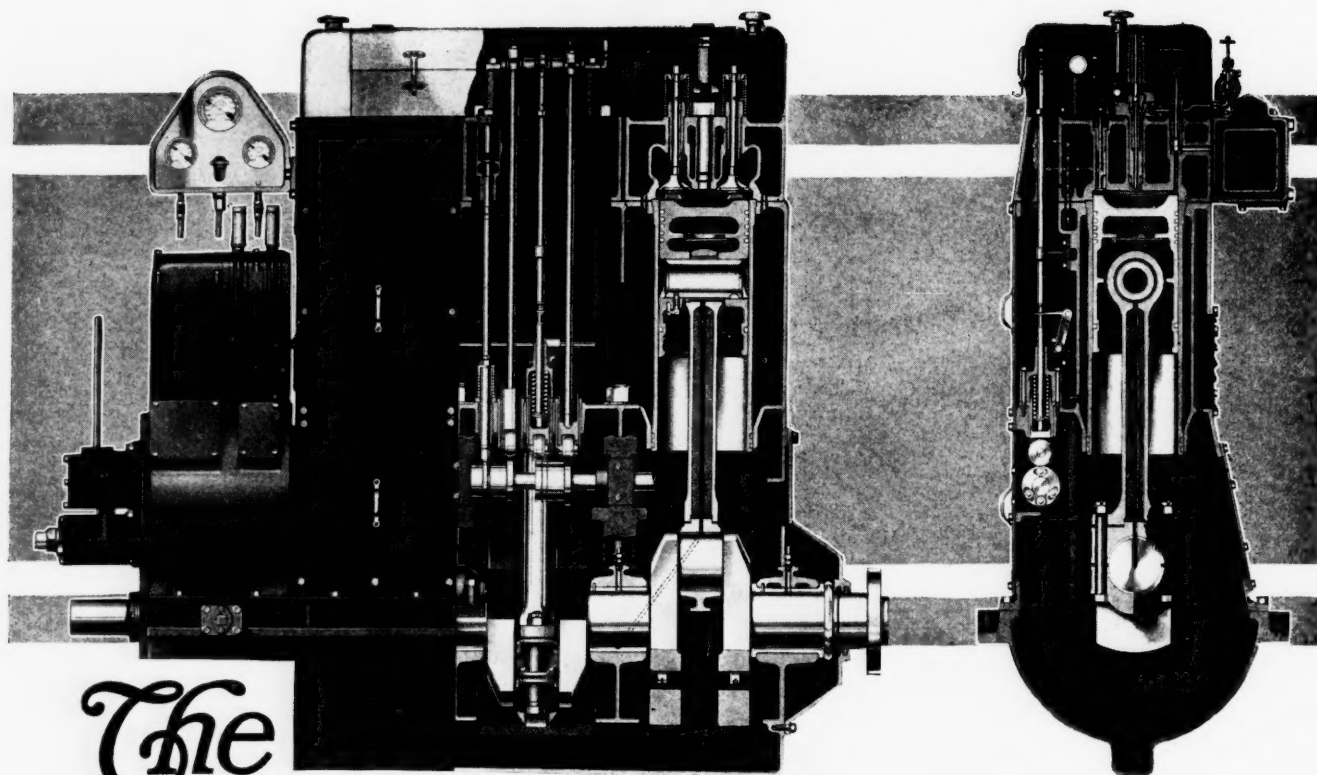
The lapel microphone is the infant of the telephone family — the latest of a growing group of products that are maintaining Western Electric's reputation as leaders in sound transmission. Back of this tiny device is a 50 year experience in the making of telephones for the Bell System.

Lapel Microphones are distributed by Graybar Electric

Western Electric

LEADERS IN SOUND TRANSMISSION APPARATUS

AUGUST NINETEEN THIRTY-TWO



The **SUPERIOR FUEL SYSTEM**

Constant-pressure, mechanical fuel injection, synchronized with engine speed, assures, in all cylinders, equal distribution of fuel, regular firing and perfect combustion . . . regardless of engine speed or load.

Spray nozzle or fuel injector is designed to permit removal, for inspection or cleaning, without disturbing other parts.

Fuel pump plunger and spray valve needles are

lapped to respective sleeves . . . no packing necessary.

Duplex fuel oil filter eliminates possibility of foreign matter entering spray nozzle.

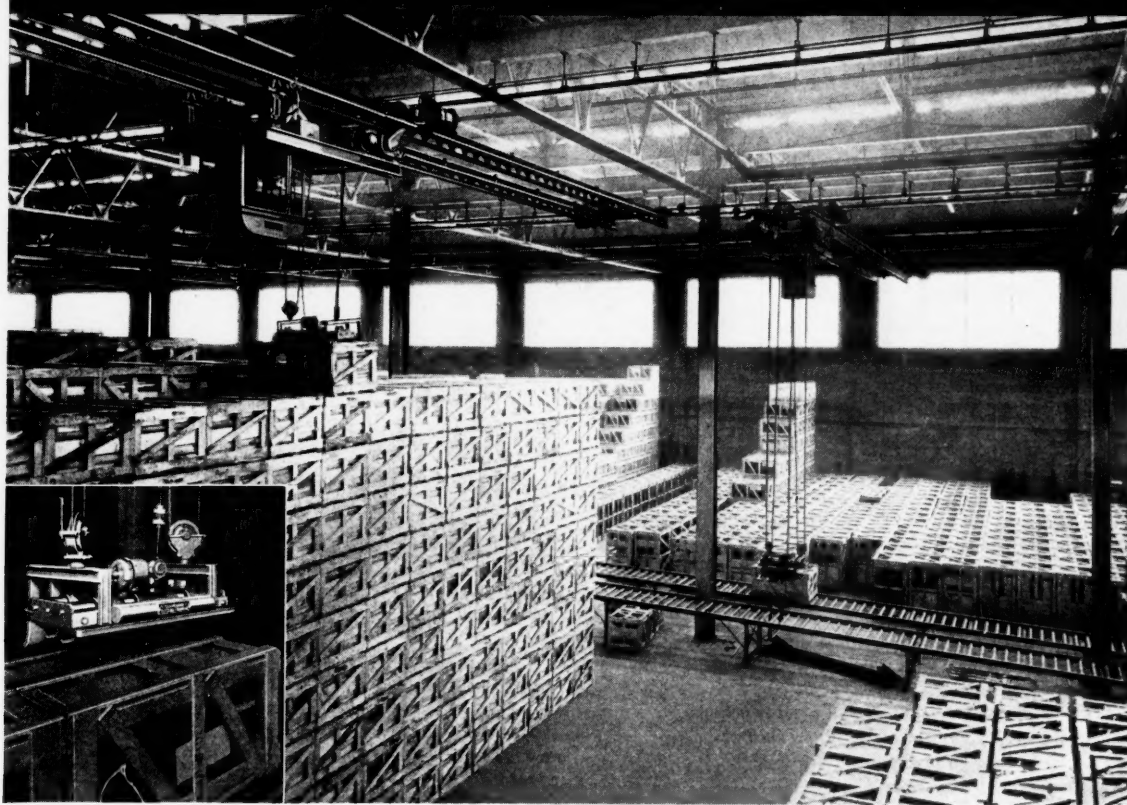
This modern fuel system is one of the most important factors in the economical and dependable service rendered by Superior Diesel Stationary Engines.

*Further details in Bulletin No. 125-C.
Your Copy is free on request.*

SUPERIOR ENGINE COMPANY
SPRINGFIELD, OHIO

SUPERIOR
DIESEL · STATIONARY · ENGINES

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Tramrail crate grabs were a factor in solving this problem

Cleveland Tramrail helped put this warehouse on production schedule

Part of the task of putting your house in order is modernizing with Efficient Warehousing Methods and Equipment.

Whether the warehousing is of raw materials, maintenance stock or finished product, the handling in and through the stockroom to the production machines and

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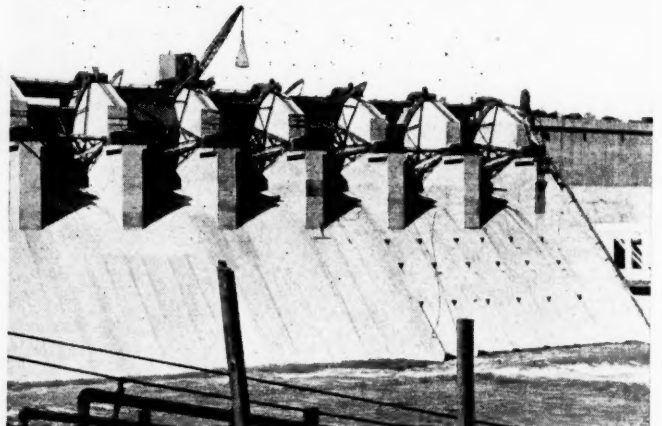
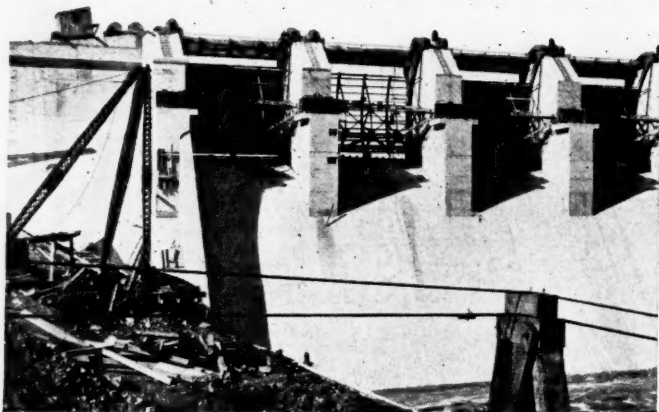
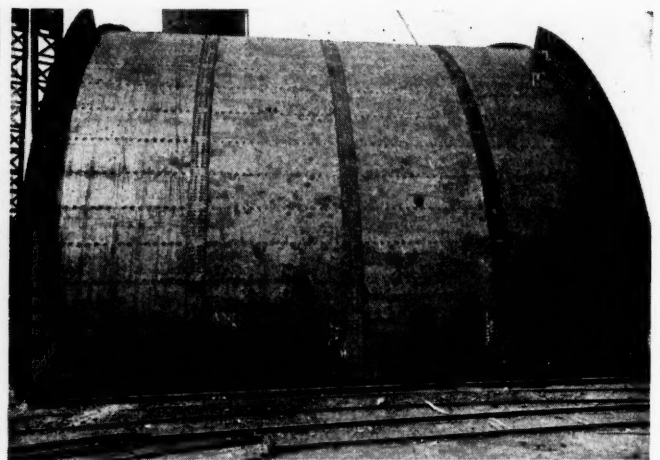
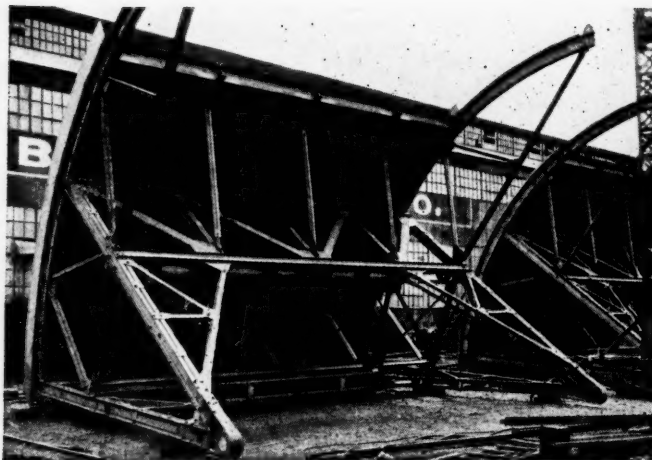
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There may be Real Advantages in making use of his services which are offered without obligation

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Atlanta, Ga.	Chicago, Ill.	Easton, Pa.	(See Rockford)	Minneapolis, Minn.	Nutley, N. J.	Rockford, Ill.	St. Louis, Mo.
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Birmingham, Ala.	Cleveland, Ohio	Evansville, Ind.	Knoxville, Tenn.	Nashville, Tenn.	Pittsburgh, Pa.	Seattle, Wash.	Toledo, Ohio
Boston, Mass.	Dallas, Tex.	Fort Wayne, Ind.	Los Angeles, Calif.	Newark, N. J.	Portland, Maine	Sheboygan, Wis.	Trenton, N. J.
Brooklyn, N. Y.	Davenport, Iowa	(See Toledo)	Louisville, Ky.	New Haven, Conn.	Portland, Oregon		York, Pa.
Buffalo, N. Y.	Dayton, Ohio	Indianapolis, Ind.					Youngstown, Ohio.

CLEVELAND

HAND OR ELECTRIC TRAMRAIL

Care in the Shop Avoids Trouble on the Job



FITTED FOR THE JOB

Upper pictures show Taintor Gates being assembled and fitted together in our Memphis Plant. We manufactured 10 of these for the Carpenter Dam on Ouachita River, Hot Springs, Ark., built by Phoenix Utility Co., Engineers, for Arkansas Power & Light Co. Lower picture shows Carpenter Dam with gates in place.

Taintor Gates, as they are called, control the water elevation in dams. They must fit true and close for water-tightness and ease of operation. And then they have to stand considerable pressure. All of which calls for an exact job of manufacture.

We have built many taintor gates, sluice gates, intake gates, in fact all kinds of steel-work for dams and power projects. Which we mention here as evidence of our widely varied experience and ability.

VIRGINIA BRIDGE

Steel Structures

VIRGINIA BRIDGE & IRON CO.

Roanoke, Birmingham, Memphis, Atlanta, New Orleans
New York, Los Angeles, Charlotte, Dallas, El Paso

Plants at Roanoke—Birmingham—Memphis

MANUFACTURERS RECORD FOR

• Manufacturers Record •

RESTRICTIONS BLOCKING TRADE CHANNELS

THE trade channels of the world are blocked now to an extent never before known since there was such a thing as modern commerce. This blockade is essentially maintained through two devices:

1. Establishment by customer nations of quota systems.
2. Exchange restrictions.

It is a desirable thing, and no nation has profited from it more than the United States, to protect, by tariff barriers, domestic markets against unfair competition from abroad, and that is all that the protective tariff in America has ever sought to do. But when nations, in addition to the use of this legitimate device, resort to an absolute prohibition of imports, over and above specified small amounts, they in effect declare that trade is undesirable and they disintegrate populations into a series of isolated communities which must stew in the juices of the poverty thus decreed.

The effect of exchange restrictions is even more devastating. The financial emergency has brought it about that nation after nation, while ready to buy our raw materials, can pay for them only in local currency which cannot be transferred into American dollars. Manifestly, we cannot sell our cotton for German marks under an agreement that those marks shall be kept in Germany.

Producing about half of the world's cotton and dependent upon world demand for the sale of more than half of its crop, as well as being a heavy exporter of other farm products, The South is vitally concerned in maintaining open trade channels to foreign markets. The South has no monopoly of cotton growing and with the increasing production of cotton in foreign countries, must continue to meet competition by supplying better cotton at lower cost through more efficient methods of cultivation and distribution. In the last analysis no foreigner buys American prod-

ucts of any kind merely because of his love for America. He buys when it is to his advantage, either through quality or price, or both, to do so. This is demonstrated by the great increase in cotton exports in recent months, particularly to the Orient.

The South, aside from politics, therefore, should be emphatically insistent that our Government should use every possible effort, first, to break down the quota system, as now applied by foreign nations, and second, to evolve some method whereby the absolutely ruinous effects of exchange restrictions may be neutralized and overcome.

It is particularly requisite, if the South is to achieve her full measure of prosperity, that she should have clear access to the markets of Central Europe. It is not yet apparent how the old problem of reparations and war debts will be solved, but there is no section of our country that can profit so much from a solution of this issue as the South. Irrespective of the justice of the indemnities levied on Germany, and quite apart from any political considerations, in an international sense, the payment of reparations reduces the ability of Germany to purchase the products of the South. On the other hand, non-payment of reparations by Germany reduces to that amount the income of Great Britain and France. Yet, Germany is the gateway to Eastern Europe and especially to that tier of nations created by the Treaty of Versailles.

The differentials in favor of the South, over the era now dawning, are explicit and obvious. At a time when economy in production will be determinative in successful industrialism, the South, because of her climate and all the advantages it induces, can produce more cheaply than any other section. She can meet competition, any competition, better. She needs no special advantages other than those which nature has provided. But she does require, and her statesmen must demand, that she receive equal treatment with other producers and that there be no favored nation trade allotment preference to prevent legitimate competitive access to world markets for her raw materials.

FACTS TO REMEMBER

THE United States has entered the second half of 1932 with brighter prospects for business revival. For the first time in three years the downward line of production and prices is tending to straighten out. In some of the major industries, the production line actually turned upward in recent weeks and in a subsequent drop did not reach the former low level. Prices have advanced in some lines at a season of the year when normally they would register decline.

This is ground for encouragement and it is well to remember some other facts about this country's affairs that should help to dispel some of the prevailing gloom.

Unemployment is pronounced, but there are more than 30,000,000 people in the United States who are still on the job. Even under the reduced wages of the present, their purchasing power is far greater than that of any other country or groups of countries whose aggregate population equals that of the United States.

In our transportation systems and motive power, including some 25,000,000 motor vehicles; in our cultivated farms, modern factories, mines, power development and dwelling places, we have physical assets far beyond anything of the past.

In 1910 the United States was considered the great industrial nation of the world. Were it not for the frenzied activity of the several years following the World War, the amount of business done by the United States today and the extent of its present wealth under the deflation of the present would be considered prodigious.

We have 52,000,000 savings deposit accounts with over \$29,000,000,000 in the banks to their credit. In the mutual savings banks of the country deposits are \$1,233,000,000 in excess of what they were in the height of boom times.

There are 68,000,000 insurance policy holders insured for more than \$110,000,000,000, or almost seven times the amount in force in 1910. More than \$16,500,000,000 new life insurance was written in the depression year 1931.

Bank clearings for the United States in 1931 were \$462,000,000,000, while in 1910 they were \$168,000,000,000.

As a nation we hold more of the world's monetary gold than ever has been assembled in any one country. We have about \$4,000,000,000 of the yellow metal.

The assessed value of property in 1930 was nearly \$167,000,000,000; in 1910 it was \$69,500,000,000.

The wealth of the United States, estimated now at

\$300,000,000,000, is about double the amount recorded in 1910, while our population increased during this period by only one-third.

As shown by the figures presented in the 1932 edition of the Blue Book of Southern Progress, the wealth of the South today is 90 per cent of the wealth of the entire country in 1900.

We spent for public schools in the United States in 1930 \$2,305,000,000 and in 1910 \$426,250,000. The South spent for public schools in 1930 \$463,500,000, while in 1910 it was only \$80,854,000.

For highways, the country spent \$1,618,000,000 in 1931; while in 1914 the figure was \$240,000,000. The South in 1931 expended twice as much for good roads as the country expended in 1914.

More Americans own their own homes than the people of any other country and they have more comforts and conveniences than any people in the world's history. Many of our living requirements are considered the height of luxury in foreign lands.

The automatic machine for home refrigeration has been perfected since 1925. In the three years of the depression, approximately 3,750,000 mechanical refrigerators have been purchased at an estimated cost of \$2,000,000,000, while more than 16,000,000 radios are now owned in the United States.

Our exports today are far in excess of our exports prior to the World War. While the United States leads the world in foreign trade, it is true that 90 per cent of our business is done with and among our 125,000,000 people. This is the greatest present and potential market for our products.

Production in many major lines is not sufficient to take care of replacement and commodity stocks in the hands of dealers are lower than they have been for years. At the low rate of operation in the steel industry, it is estimated that more steel is rusting away than is being produced. With such a condition with respect to steel, the wear and tear on other products, equipment and buildings there is piling up a demand for replacements sufficient to put every plant and idle employe back to work.

More than \$200,000,000 of building, construction and engineering contracts were let in the Southern states during the first six months of this year. Since March the awards for new projects have steadily gained in each successive month, reaching a total of \$43,000,000 for June.

The South is the greatest crop producing region of the United States.

It is the principal producer of materials for clothing and shelter such as cotton, wool, lumber, stone, clays, metallic minerals and similar products that form the basic industries of the country.

In its wood, coal, oil and gas and water powers, its heating and power resources are unequalled.

These facts, emphasized in the 1932 edition of the Blue Book of Southern Progress, explain the reason why the South, even during one of the worst business depressions in the world's history, has continued to attract new industries. Men of vision are taking advantage of the slack period to prepare for activity.

SOLUTION NEARER

THE problem of the world is how to pay debts made when dollars were cheap with dollars that are dear and are twice as hard to get, and this very pressing problem does not become any less difficult in the face of the fact that about one day's work in four must go to pay the tax collector.

The experience of the last three years has taught us the futility of quack remedies and false hopes. Men are willing to start again almost from scratch and it is encouraging that the losses incurred in the descent from the heights to the depths are being recognized and admitted as definite losses. The return to better times does not mean necessarily a volume of business, nor prices equal to those prevailing in the fevered days when the pyramid collapsed.

Moreover, the great void, which is growing bigger every day from lack of needed things, is making certain an abundant crop of orders to be gathered when confidence displaces fear.

The problem is nearer solution with the obstacles to be overcome fully recognized.

There will be no short road to prosperity, but actual and increasing needs will bring about a growing demand and supply will be regulated to meet it with better products made in a better way.

LAW AND ORDER

POLITICAL intimidation and the use of force to secure special privilege by organized groups, whether bonus seekers or any other body, cannot be tolerated. Law and order must be maintained or else the nation is headed for disintegration.

That it was necessary to forcibly evict the bonus seekers from their quarters in Washington was lamentable. So long as they were within the law and peacefully conducted their "lobbying" they had the same privilege as any other law abiding citizen. Along with the group of veterans were communists and agitators who were only waiting an opportune moment to use their methods of anarchy that are always against all government and organized society. That they failed of their purpose is to the credit of the level-headed Americans among the bonus seekers and to the decisive manner in which the situation was handled by those in authority.

Every consideration was shown these misguided men, even to over-looking infractions of the law in their encroachment on property rights. Flouting of the police regulations of the District of Columbia soon led to graver offenses resulting in the use of force against the police. It is regrettable that there was a life lost and some minor casualties before the soldiers took charge, but the situation required prompt and decided action and it is fortunate for the country this was taken. It had become too acute to permit further parleying with the thousands of men who intended, by their numbers, to intimidate the Government.

TAXING BUSINESS TO DEATH

ARTICLES in the MANUFACTURERS RECORD about the small business being the backbone of the country's commercial structure and probably the first to get the benefit of returning prosperity have aroused marked interest. A correspondent asks how is it possible for the small business to prosper under the burdensome taxes now in force. That is a question that is perplexing large and small concerns as well as individuals. Everyone is vitally concerned about the various taxes, big and little, levied on every form of activity.

Citing the experience of a small retail lumber and building material yard, Littrell Lumber Co., Inc., St. Petersburg, Florida, says that under careful management, after all expenses are deducted and a reserve set up for bad debts, it has earned a net profit of \$1000. This \$1000 profit is not in cash, but is invested in materials and accounts receivable. The management feels that some headway has been made towards building up a small surplus and eventually having enough cash to discount bills, pay for its inventory and get out of debt to the bank. The company has been able to come out on the right side of the ledger in a depressing year. Then enters the tax collector.

Federal taxes call for \$137.50 or 13¾ per cent of the supposed \$1000 profit, which must be paid in cash. Yet the profit is not in cash, but mainly in materials. State levies call for \$100 cash to cover personal property tax on materials, buildings and trucks. The city calls for \$150 cash covering a similar tax. After that the State collects a franchise tax of \$10 cash. The county collects \$15 cash; the city license collector requires \$25 cash for permission to remain in business. In addition, license tax for trucks and possibly a passenger car or two costs \$200 for the privilege of operating them and paying a Federal and State gasoline tax, in this particular instance of 8 cents a gallon.

After all the numerous taxes have been paid, the supposed \$1000 profit has dwindled to \$362.50 and cash had to be raised to pay the taxes. What is the result? There is universal scheming under every legitimate method on the part of individuals and over-taxed business to circumvent the tax collector. There is refusal to buy materials, except what are absolutely necessary to conduct business, thus cutting down inventory. This hurts the particular business and other businesses by reducing stock, and it hurts the manufacturers because they cannot market goods and are forced to curtail operations and throw men out of employment.

Until some relief is secured from excessive taxation, it is impossible for any business, big or little, to succeed, and prosperity will not return so long as business is being taxed to death. Organizations, commissions and committees everywhere are forming to work for lower taxes and reduction in government costs.

The article "Necessity for Reducing Taxes" on page 24 by Senator Josiah W. Bailey, strikes at the crux of present excessive cost of government and suggests the way to relief.

BUSINESS LEADERS SEE BRIGHTER OUTLOOK FOR SOUTH

THE announcement of the change of the MANUFACTURERS RECORD from a weekly to a monthly publication has brought many comments from business leaders of the South and other sections. They heartily endorse the move to broaden its work and increase its usefulness in serving the South.

Its broad discussions of matters concerning the welfare of the South and the country will be maintained through the MANUFACTURERS RECORD each month.

The detailed news of new undertakings, heretofore printed *weekly* in its Construction Department, is appearing *daily* in the enlarged MANUFACTURERS RECORD DAILY CONSTRUCTION BULLETIN.

As we said in our announcement of the change in publication, there has never been a time in this country's history when a proper interpretation of problems affecting the nation was more needed than now, and it will be our purpose to address ourselves to this work with the same thoroughness that has marked the career of this paper for 50 years.

To Enter an Era of Greater Growth

NORFOLK AND WESTERN RAILWAY CO.
ROANOKE, VA.

Editor Manufacturers Record:

A study of the economic history of the United States reveals two outstanding facts. First, the country has a record of sound material development and consistent progress unparalleled in the history of the world. Second, it has invariably emerged from every economic adversity stronger and more progressive than ever. A nation of vigorous and courageous people, vast resources and wealth, it is inevitable that we will recover from this depression to enter an era of even greater growth.

The remarkable industrial and agricultural progress and advancement of the South during the past quarter of a century, and particularly within the past decade, is unprecedented. With its almost unlimited supply and variety of raw materials, plentiful labor, its proximity to the vast consuming markets, its excellent transportation systems and superb harbors, the potential development and wealth of the South have hardly been touched. For this reason I sincerely believe that the South will be one of the first sections of the nation to herald the end of the depression and demonstrate the fundamental soundness of our economic system.

In the upbuilding of the South during the past 50 years, the MANUFACTURERS RECORD has been a vital force. For the new monthly MANUFACTURERS RECORD I wish the fullest measure of prosperity and continued usefulness.

A. C. NEEDLES, President.

A Potent Factor in Upbuilding the South

HIBERNIA BANK & TRUST COMPANY
NEW ORLEANS, LA.

Editor Manufacturers Record:

I have been a consistent reader of the MANUFACTURERS RECORD, and have watched its progress and the steady development of its constructive purpose.

Needless to say, I am glad to testify to its worthwhileness as a potent factor in building a sound agricultural, industrial, financial and commercial Southland, and naturally, I am interested in your plans for broadening the work and increasing the usefulness of your excellent journal.

FRED W. ELLSWORTH, Vice-President.

An Opportunity for Greater Service

HARDIE-TYNES MFG. CO.
ENGINE BUILDERS
BIRMINGHAM, ALA.

Editor Manufacturers Record:

I regard your plans to change the MANUFACTURERS RECORD to a monthly publication as courageous and wise from every standpoint. It seems to me there will be an opportunity here to broaden your work and increase your usefulness to subscribers.

By covering the detailed construction items, which you have printed for so many years, through your DAILY CONSTRUCTION BULLETIN, you will give your readers the opportunity to keep in touch with the industrial progress of the South, while through the monthly magazine, interpreting the trends of business and discussing the things that affect the country and the South, you will be able

to reach a much wider audience and, in my view, carry on not only consistently, but more aggressively, the patriotic principles that have actuated you during your half a century of work for the development of the South and the promotion of business ideals.

Your enterprise deserves the success which I am sure will attend its efforts.

W. D. TYNES, President.

A Foreshadow of Better Times

ATLANTIC COAST LINE RAILROAD
COMPANY
NEW YORK

Editor Manufacturers Record:

The MANUFACTURERS RECORD has been identified for so many years with the commercial and economic development of the South that I trust the birth of the new monthly will mark the rebirth of industrial activity not only in the South but in our entire nation.

May the years to come be successful ones for your paper, as it possesses great constructive potentialities for assisting our section in the return to the prosperity which I think we all agree is in store for her.

LYMAN DELANO, Chairman.

Past Accomplishment Will Be Only a Shadow of the Future

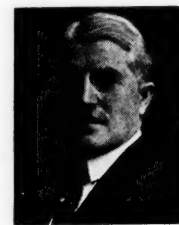
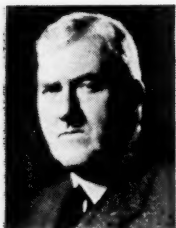
THE AMERICAN ROLLING MILL CO.,
MIDDLETOWN, OHIO

Editor Manufacturers Record:

When this tragic storm of readjustment and retrenchment has fully spent itself, the future of this, the greatest of all nations that civilization has as yet developed, will largely depend upon our powers of analysis and our ability and willingness to profit by the experiences of the past century and particularly of the past 15 years.

When experience brings so much of a costly tragedy both human and material, it would seem as though every effort would be made to avoid the pitfalls of the past. Unfortunately that perverse factor we call "Optimism," which can so completely disappear in time of travail, fully reasserts itself the minute we are out of trouble, and we go ahead again as before.

If we will but profit by our costly experiences; by conducting our Commerce, Industry and Agriculture along sound economic lines; by demanding and supporting good government throughout



the nation; by insisting that we be given promptly the 25 per cent reduction in the present colossal cost of Federal Government, that one political party has promised, and then demanding another 25 per cent immediately that is accomplished; by playing fair; by supporting sound and helpful cooperation between the various units engaged in legitimate business and between government and the people; and lastly by standing solidly on the Gibraltar of our Constitution while we work and save, past accomplishment can and will be only a shadow of the FUTURE.

Your new monthly MANUFACTURERS RECORD, built on the solid foundation of 50 years of outstanding service to the South, should be able to perform an ever-increasing service to manufacturers and other business men.

The MANUFACTURERS RECORD has given the facts about the resources and activities of that great empire commonly called "The South" in a very informative and striking manner. It has at the same time performed that service standing on a solid rock of fearless Americanism which has been of inestimable value to the whole nation. I have never known a publication to be more consistently and persistently patriotic in its every word, policy and expression, and at the same time to be so free of prejudice or of support of any selfish interest. It has freely, frankly and broadmindedly discussed every problem arising from time to time of interest to the people and business of the South, and so often of equal interest to those of every other section in this great commonwealth of America.

GEORGE M. VERITY, Chairman.

A Determination to Bring Quick Recovery

SHENANDOAH LIFE INSURANCE CO., INC.
ROANOKE, VA.

Editor Manufacturers Record:

The resistance of our American people to the terrific economic condition through which we are passing has clearly demonstrated a determination to bring about quick and permanent recovery. The lessons we have learned, during the past two years, will be the means of the building of a more firm, general business structure and cause us to more carefully safeguard



for the future, the economic cycles which affect this, as well as other Nations.

I have every confidence in the sufficiency of the indomitable courage of the American people to quickly overcome the present conditions and march on to greater achievements and success that will justify what many of us claim to be a fact—that this is the greatest Nation on earth.

There is no publication of wide circulation throughout the South, that has contributed more towards our splendid citizenship than has the MANUFACTURERS RECORD.

R. H. ANGELL, President.

Furthered the Industrial Expansion of the South

ILLINOIS CENTRAL SYSTEM
CHICAGO, ILL.

Editor Manufacturers Record:

The present courageous change in the policy of the MANUFACTURERS RECORD gives proof of an adaptability to changing conditions which is typical of the viewpoint of this successful journal. Its 50-year record of service antedates by a good many years the recent industrial expansion of the South. Its reports and opinions have noticeably furthered that expansion. Its continued progress is welcomed by the Illinois Central System, which itself has been engaged in transportation between the South and the North for more than 80 years.



L. A. DOWNS, President.

Promoting Constructive Principles

VIRGINIA BRIDGE & IRON CO.
Steel Structures
Bridges, Buildings, Etc.
General Offices:
ROANOKE, VA.

Editor Manufacturers Record:

We have been constantly gratified by the consistent and conservative policies of the MANUFACTURERS RECORD in promoting constructive principles. It has ever been awake and active in commanding sound public thought and expression, and in editorial endorsement of sane and wholesome movements for the South's progress, and on the other hand, perhaps even more virile in sensing and exposing and discouraging policies and activities which it intelligently concluded would be detrimental and disastrous. It has been a fair and impartial observant and participant in promoting the South's position as related to the rest of our country and has shown a patriotic and helpful spirit in support or opposition of all National conditions as it has analyzed ultimate effects or results.

It is difficult to estimate the value of the contributions which the MANUFACTURERS RECORD has made in these respects, but it certainly has reason to be proud of its achievements, and we hope that in its new form, it may continue to always espouse the cause of truth, of conservatism, of aggressiveness, so manifest in past performances.

We have been consistent supporters of its advertising columns for more than 30 years, and in its new form we expect to continue so long as it maintains its former espousal and presentation of the South's resources and advantages and progress—which must continue to develop when we recover from this period of National and International business depression.

C. EDWIN MICHAEL, President.

Demonstrates Faith in South by Continually Expanding Operations

ALUMINUM COMPANY OF AMERICA
PITTSBURGH, PA.

Editor Manufacturers Record:

In answer to your question as to our views on the South, our record in the South is the best answer to our faith in the future of that section. For the past 20 years our operations in the South have been expanding steadily as we have installed from time to time new plants for the purpose of carrying on our business.

With our bauxite mines in Arkansas, Georgia and Alabama, and our smelting plants at Alcoa, Tenn., and Badin, N. C., together with our sheet mill and other finishing plants at the two last named places, we have increased our operations until now about one-half of our total operations are conducted in the South.

We feel that the progress of the South has been upheld and accelerated by the fine work which the MANUFACTURERS RECORD has done during the 20 years we have been interested in the South and during which time we have naturally watched with interest the record of your publication.

ARTHUR V. DAVIS,
Chairman of the Board.

Future Offers Encouragement

LONG-BELL LUMBER SALES CORPORATION
KANSAS CITY, MO.

Editor Manufacturers Record:

It is my belief that the construction industry has ahead of it one of the greatest periods of good business it has ever enjoyed.



No one knows how quickly that period will begin but it is evident that it *must come* when we consider that home and farm building began to fall off in late 1928 and in some communities even earlier; that since 1928 the volume has

decreased rapidly until now it is probably less than 25 per cent of normal, provided we take as normal the years 1921 to 1928.

Two of the greatest outlets for the lumber industry—home building and farm building—have almost ceased to exist. Soon it will be four years that the normal flow of these markets has been dammed up, and practically all of that accumulated volume must be taken care of eventually. As lumber easily is the leading product consumed in home and farm building, the long pull future of the lumber industry is certainly encouraging.

This means much to the South because of its prominent position in the production of softwood and hardwood lumber. I am sure that this is pleasing to the MANUFACTURERS RECORD—as a loyal worker for and staunch exponent of Southern progress.

R. A. LONG, Chairman.

NECESSITY FOR REDUCING TAXES

By

Josiah W. Bailey

Senator of the United States From the
State of North Carolina

THE Government of the United States, and all governments in our land, are under imperative necessity of reducing their expenditures in order that taxes may be reduced. The task will be difficult. Many of those who are supported by the public revenue are determined and are well fortified. But necessity itself will at length prevail. We will have directly an end of the spectacle of the President exhorting the Congress to set up economies, while the heads of his Departments and Bureaus carry on a nation-wide propaganda against reducing appropriations.

The reduction of expenditures and taxes is demanded for three reasons as follows:

1. Tax-paying capacity has been greatly reduced, and may be exhausted.
2. All who labor must be relieved of the existing intolerable burden—which burden has driven capital out of business, forbids men to expose their possessions by building plants or purchasing equipment, moves the prudent not to own homes or farms, and deprives the farmer, the miner and the fisherman (these three being the sources of the annual wealth which is the basis of industry and commerce) of any reward whatever for their toil, and so induces them first to discontent and then to despair. We cannot hope for the arrest of the downward movement toward ruin until we shall have reduced taxes.
3. The agricultural, commercial and industrial structure cannot bear the present burden. We can have no prosperity under such taxes.

There are many groups, each demanding money or privileges. It is the legislator's primary duty to represent the great mass of men and women who ask nothing of the Government save the opportunity to work, to be secure in their pursuits and to enjoy the just rewards of honest toil. They may hear the groups gladly, but they must consider their causes in the light of the whole people and the general welfare. On the other hand, the masses, for whom the legislator labors, ought to encourage and uphold him. The pressure of propa-

ganda from the groups ought to be more than offset by the pressure from the taxpayers.

The total tax burden in our country in 1929 was \$13,780,000,000. Of this the Federal Government is responsible for \$4,500,000,000; the State governments for \$2,000,000,000; and the local (county and city) governments for \$7,280,000,000. This is more than one-fourth of the National income; and that income will be less in 1932 than in 1931.

Just a few years ago, in 1922, the total cost of government in this country was \$7,500,000,000, of which \$3,800,000,000 was spent by the Federal Government, \$1,300,000,000 by the State governments, \$2,400,000,000 by local governments (counties, cities and towns).

Many are urging Members of the Congress to act with regard to Federal taxes. They ought to proceed with no less earnestness with respect to State and local taxes; for plainly the great increase has been in local taxes. The weight of the burden is more local than Federal.

Consider the astonishing increase shown by these figures. What does it suggest? Does the citizen of 1932 receive benefits commensurate with this increase? Granted that decided advances have been made, has there been advancement in human welfare to justify this increase? Is there anything in this increase to comfort the business man in bankruptcy and the farmer who surrenders his home in foreclosure? Anything to encourage the manufacturer who finds himself no longer able to sell goods or pay wages? Anything to encourage 8,000,000 of unemployed workers? Anything to compensate 8,000,000 farmers who receive nothing for their toil?

This increase suggests that the American people have departed from that conception of the simplicity of government in which our States were founded and our Republic brought forth; and that they have drifted into a sort of socialism which, if not arrested, will ensue in communism; that, unwittingly on their part but by cunning design on the

This is the final of a series of three articles on the Functions of Government written for the Manufacturers Record by Senator Bailey. "Modern Experiments in Government" and "Government in Business in the Present Hour" were the subjects of the first two articles.—
EDITOR.

The Teaching That We Can Get All the Money We Want and Need From the Wealthy Is Plain Foolishness. The Wealthy Have Been Greatly Reduced. Taxes Are Universal in Their Effect; and No Matter From Where Taken in the First Instance Are at Length a Toll Upon Everyone Who Works

part of others, they have been led no longer to consider that the purpose of government is to govern; but that it is a sort of social institution to take care of everybody, a benevolent father of a family of dependents. It is time to restore the conception of government in terms of the simplicity for which Jefferson stood. Time to have an end of the teaching that the purpose of taxation is to redistribute wealth. Time to affirm the teaching that the object of government is to preserve order and liberty in order that those who labor may enjoy the fruits of their labor.

The teaching that we can get all the money we want and need from the wealthy is plain foolishness. The wealthy have been greatly reduced; moreover, taxes are universal in their effect; and no matter from where taken in the first instance are at length a toll upon everyone who works.

Every tax, no matter how levied or from whom taken, is a tax upon human labor; no matter who first pays, it is reflected adversely in the price the farmers and the workers receive—reflected either in reduced return or in unemployment. Will men and women of sense never realize this simple truth? Ask

me why 8,000,000 workers are unemployed, and I will answer that ten years of extravagant public expenditures and the war cost account very largely for the number. Ask me why business does not revive and thereby employ the workers, and I will tell you that one moving reason is that no man having capital will put it into business when he knows that the tax-gatherer and the trustee in bankruptcy will take it. He will either hoard his money or buy a tax-free security. Ask me why mills continue to close and the army of the unemployed continues to grow, and I will tell you that the excessive burden of taxation is destroying both agriculture and industry. Ask me why money does not freely circulate, and I will answer that men do not care to borrow, to build or expand, when they know the tax-gatherer is standing near to take more than they can earn.

The present emergency may demand more of retrenchment than some would desire; but, if we would preserve our institutions in the hope of ultimate advancement, we must, for a period, accommodate ourselves to its demands. This is due to the greatly reduced circumstances of our people, and further due to the fact that the tax burden is not only more than they can bear, but also accounts in part for their reduced circumstances and tends further to reduce them.

The dollar is now worth \$1.70 in farm products; worth \$1.55 in all commodities, as compared with 1926 values. Why then should the governments, Federal, State and local, not be able, with \$1.55 dollars, to buy more and thereby reduce? Why should public servants insist upon normal pay with abnormal dollars when all others have suffered reductions and millions receive nothing? Why should governments not get on with correspondingly less expenditures, and this without dismissing any useful officer or employee?

It is a law of economics that as the prices of commodities fall all other prices must fall, and until they shall fall to a level reasonably related to commodity prices, commodity prices will continue to fall. This law is as inexorable as the law of gravity. If you ask me why commodity prices continue to fall, I will tell you that here is one explanation—the disproportionate price of government continues to press them down. We will not improve commodity prices by any process of currency correction alone. We must also decrease the cost of government. Manifestly, the first step is reduced expense of government and reduced taxes. It would be futile to correct the currency dislocation without reducing taxes; for currency will not circulate unless invested in useful enterprise, and useful enterprise can-

not exist under the present tax burden. We may put money in the channel of trade, but under the pressure of excessive taxation it will not flow. A currency correction with reduced taxes would increase commodity prices and go far in relief and recovery.

Let us not deceive ourselves. There will be no recovery in the sense we all once hoped for, not for years at any rate and not without more than one profound alteration in policy. To entertain the hope of early recovery, or recovery without strong measures, is to indulge in romance and not to confront the inexorable realities of the gravest situation that our country has known. The only hope those now employed have of remaining employed, whether publicly or privately, lies in reduced expense of government and increase in commodity prices when crops come in this fall. The hope of maintaining public salaries until prosperity shall return is gone.

The high cost of government itself tends to prevent the return of prosperity.

Prudent public servants, so far from resisting reductions in the expense of government, will encourage them. The question now is, not of the means of recovery, but of the way to avoid utter collapse and demoralization. Cool heads, serene faith, and the spirit of sacrifice are needed now as never before.

When the purchasing power of the dollar is at a premium of fifty-five per cent, one cannot reconcile resistance to a cut of ten per cent or more in any government expense with ordinary common sense. And when so many in private life have suffered reductions of income from ten to sixty per cent, and 8,000,000 workers are out of work and 8,000,000 farmers are receiving little or no return, one has great difficulty in understanding public servants who resist a reduction in the rewards of office, in order that the burden upon those who elected them, and by whose will they hold office, may be relieved to some degree. Ninety per cent of public servants, upon consideration, will welcome the opportunity to reduce their pay and so manifest their interest in and sympathy with their fellows who are in distress. They must realize that their position cannot be maintained, and, the more they try to maintain it, the worse in due season will be their case.

Our present task is to come through, looking to a better day in which all the good and true objectives of government, consistent with the standards of simplicity, may be ours. Our present opportunity is to make an end of the conception of the Federal Government as a social institution. Our present duty is to make gladly every sacrifice required by a crisis so grave.

GOVERNMENT COSTS

Cement Official Distinguishes Between Reducing Operating Expenditures and Wise Capital Investment

Two Hundred and Forty-Seven Cities of Over 1000 Population Have No Sewage Systems

Government costs must be reduced, but in doing so it is highly important to distinguish between wasteful current expenditures and wise capital investment according to Edward J. Mehren, president of the Portland Cement Association, Chicago.

Mr. Mehren's views were expressed in a letter to Robert L. Lund, president of the National Association of Manufacturers, which has been conferring with members of trade organizations to consider means of effecting economies in government.

"There is grave need for reduction in government costs," Mr. Mehren's letter said in part. "Duplicated, overlapping and wasteful functions should be eliminated. The benefits to industry and to the country should be out of all proportion to the energy required.

"It is highly important, however, to distinguish between wasteful current expenditures and wise capital investment. The latter creates employment, is not competitive with private industry, and if truly wise, finds economic justification in the money saved or earned.

"For a number of reasons, this is a favorable time to undertake needed public works. The community can't eat its cake and have it, too. Bonds of financially stable communities are selling at par or even at a premium. Many other high class municipal bonds are selling at small discounts. On the other hand, construction costs are off materially. The average cost of paved highways is between 20 and 30 per cent under that of 1930. Building costs have dropped as much. Even if bonds must be sold on a 6 per cent basis, the ultimate cost of the work to the public would be a bargain compared with the costs of work for a decade prior to 1929.

"As to the nature of wise public investment, be it noted that American cities are using thousands of miles of worn-out pavement, uneconomical to maintain and costly to users. There are 247 cities of over 1,000 population in the United States which have no sewage collection systems whatever and almost 6,000 which have no disposal plants. And these conditions continue in the face of constant protest from state and municipal boards of health.

"Business leaders and public officials have come to see the function of public works in speeding up the business machinery," the letter concluded, "which is added reason for keeping in mind the distinction between current expenditures and wise capital investment."



\$2,500,000 PRETTYBOY DAM— ENGINEERING FEAT

COMPLETION late this year of Prettyboy Dam on the upper Gunpowder River, 15 miles by water above the Loch Raven Dam, that now impounds the water supply for the city of Baltimore, will add something like 20,000,000,000 gallons to the city's reserve supply of water. The new dam, under construction since October, 1930, will impound no new source of supply; it will instead be a secondary reserve for the conservation of water which, in normal times, flows over the spillway at Loch Raven as waste. The job is noteworthy in many particulars.

The original contract price was \$996,000; the actual construction will involve an expenditure of about \$2,500,000. The initial figure was based on an estimated total of earth and rock excavation of 70,000 cubic yards to prepare the site for the dam. But when the earth overburden was removed it disclosed very

soft and unstable "rotten" rock, inadequate to support the proposed dam and its backed-up water pressure. There was only one thing to do and that was to locate a solid foundation, and so the work of digging, blasting and hauling away the excavated materials went on. The latest estimate, therefore, places the total excavation of all classes at 400,000 cubic yards, nearly six times the original figure. The findings also made it mandatory to practically redesign the entire dam structure in the field.

As an excavation job there is little new or original, with the possible exception of the building of incline concrete runways about 400 feet long and with a 46 per cent grade, up which loaded trucks were hauled by hoists to distribute some 135,000 yards of rock and earth at the two ends of the dam to provide for a roadway.

A wire saw, of a type extensively employed in slate quarrying, was effectively used in cutting the sides of cutoff trenches. Channeling machines

were used for cutting the sides of the trenches where it was impossible to use the wire saws. The cutoff trench is 6 feet wide on the upstream side of the dam and extends from 10 to 15 feet below the main foundation level of the structure. The wire saw was adopted because of the large number of vertical steps on both sides of the valley. One Calyx drill and four wire saws were supplied by the Stroudsburg Engine Works, Inc., Stroudsburg, Pa., the special steel wire for the saw being the product of the American Steel & Wire Co. Quartz seashore sand brought from Riverside, N. J., is fed into the cut where the wire enters by means of a small jet of water.

Two large test holes were drilled that have attracted the attention of engineers throughout the country. By using a 36-inch Ingersoll-Rand Calyx drill it was possible to take out cores of that diameter and also permit Dr. Joseph T. Singewald, a Hopkins geologist, to be lowered into the holes in a sling and make a detailed examination and then to prepare accurate sketches showing the location, drift, and strike of all faults and seams in the rock.



An Array of Power Tools Makes Up the Contractor's Plant

Crawler-type tractors, portable air compressors, channeling machines, wire saws, power shovels, stiff leg derricks, cranes, powerful trucks, hoists, electrically-driven concrete mixers, mobile pumping units, etc., go to make up the long list of equipment playing a role on this noteworthy engineering project

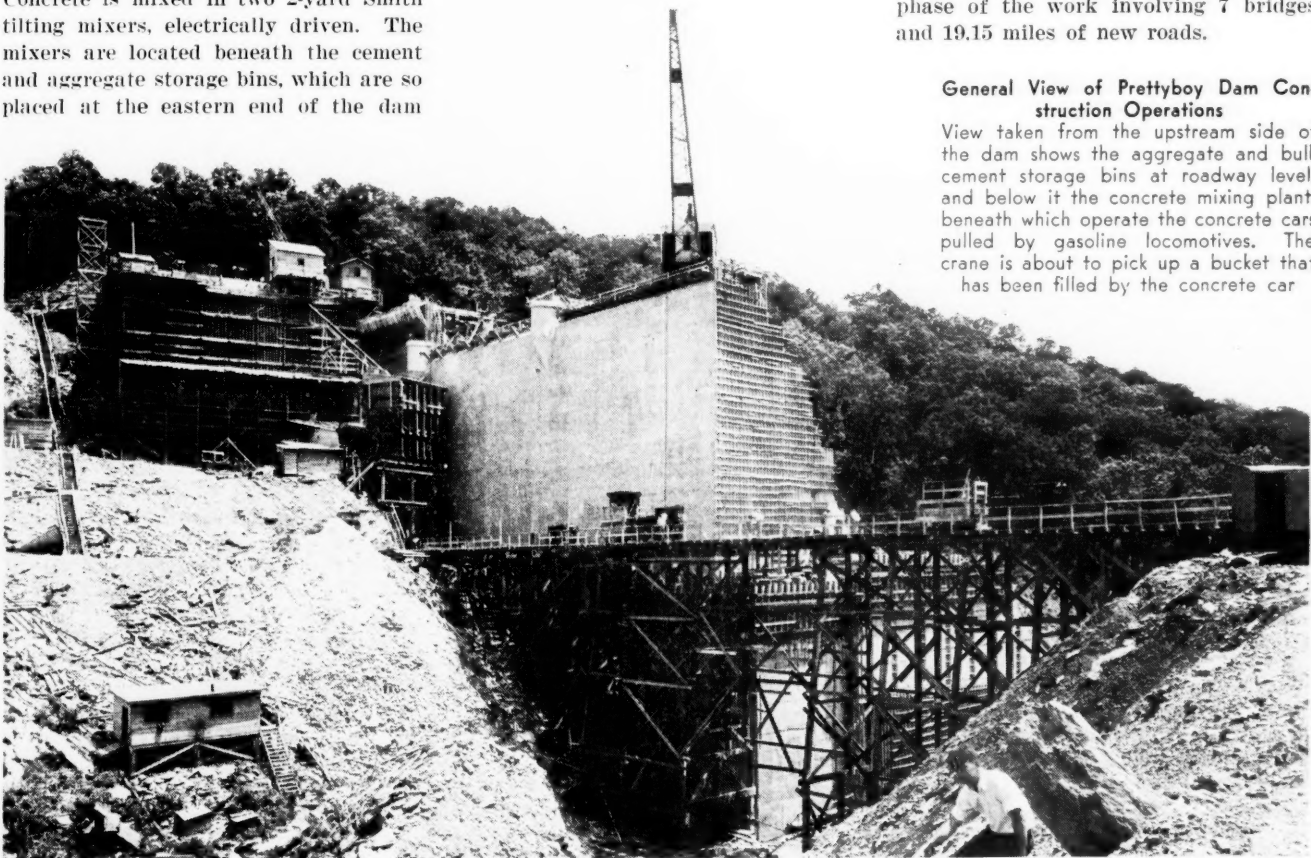
Belt conveyors supported on tubular towers were initially used to deliver large-aggregate concrete from the mixing plant to the hoppers. This was discontinued, and concrete cars pulled by Plymouth gasoline locomotives now shuttle back and forth on a wood trestle on the upstream side of the dam, and discharge into 1-yard or 2-yard buckets, depending on the character of concrete work under way. The buckets are picked up and placed by a traveling stiff-leg derrick with an 80-foot boom or by a steam driven Whirley with a 70-foot boom. Concrete is mixed in two 2-yard Smith tilting mixers, electrically driven. The mixers are located beneath the cement and aggregate storage bins, which are so placed at the eastern end of the dam

that trucks discharge into them by dumping. Bulk cement is brought by fast motor trucks fitted with waterproof tarpaulins from the Medusa plant at York, Pa.

Aggregates of three sizes are used, consisting of crushed limestone or trap rock. Cobbles, passing a 9-inch mesh and retained on a $4\frac{1}{2}$ -inch mesh, are for mass concrete. Rock dust is also added to the mix. The aggregates are delivered by trucks to the bins, from which they pass to Johnson volume and weight hoppers discharging onto a conveyor belt. The belt delivers to the two mixers. The plant as now set up easily handles 1100 cubic yards daily, and it is believed that a maximum of 1400 yards is practicable. Washed sand is shipped by train from Baltimore to Parkton, the cars discharging into hoppers, which in turn fill trucks that haul the material to the mixing plant.

The contract was let to J. A. La Porte Corp., of Albany, N. Y. The job is now being administered by a committee headed by D. C. Elphinstone, Joseph J. Hock and Guy Campbell. The committee selected George H. Bacot as general superintendent. Frank Carpenter is superintendent for the LaPorte Corp.

The project is under the direct supervision of B. L. Crozier, chief engineer of the Department of Public Works of Baltimore, with C. B. Cornell construction engineer in charge of the job. When completed the dam and reservoir will be turned over to the Bureau of Water Supply, Leon Small, water engineer, which department is in charge of the clearing and grubbing, involving 7300 acres and 1650 acres, respectively. The Bureau of Highways, George Cobb, highways engineer, is in charge of bridge and highway construction, made necessary by the inundating of original Baltimore county roads and bridges, this phase of the work involving 7 bridges and 19.15 miles of new roads.



General View of Prettyboy Dam Construction Operations

View taken from the upstream side of the dam shows the aggregate and bulk cement storage bins at roadway level, and below it the concrete mixing plant, beneath which operate the concrete cars pulled by gasoline locomotives. The crane is about to pick up a bucket that has been filled by the concrete car

GOVERNOR O. MAX GARDNER

in his biennial message to the General Assembly of North Carolina on January 9, 1931, made the following statement:

"Our public roads should be maintained by those who use them, including people from other States who travel over them. The gasoline tax levied and collected in this State furnishes as much real value for the money as any tax levied, and furnishes it direct to the man who pays it. With property groaning under the load of all other expenses of local government, it should not be made to bear any part of the expense of maintaining roads.

"Two years ago I presented to the General Assembly the suggestion of expansion of State highway maintenance to cover all public roads in the State. After further consideration of this subject, with the more complete information now available, with an adequate fund for the purpose in easy reach without a tax on property, I am more convinced of its wisdom. I do not partake of the apprehension that our State highway organization, after it has completed its big construction program, cannot be made adequate to the task of expending six million dollars of additional funds in county road maintenance. When its organization was immature and when its knowledge of road construction and maintenance had to be learned, it took over in one day all the main arteries of public roads in the State—carrying perhaps 80 per cent of travel mileage. Successfully maintaining this mileage, constantly increasing it, it assumed with conspicuous success the added responsibility of spending \$25,000,000 a year in laying

out and constructing our main State system, now carrying perhaps 85 per cent of travel mileage.

"With this major problem of construction behind us and with its seasoned organization trained in knowledge and technique extending through every county in North Carolina, I believe the State Highway Department could take over this large problem more easily than it originally met the problem of taking over the State System.

"This public road survey clearly points out the necessarily wasteful methods of public road maintenance by the more than one hundred fifty separate organizations now operating within county-line limitations. I can, of course, see difficulties and perhaps hardships involved in the carrying out of this plan, but they seem to me far outweighed by the advantages and economies. And we must meet and master difficulties and hardships if this General Assembly is to perform any major operation for the relief of property taxation.

"I therefore recommend that the gasoline tax be increased to six cents per gallon; that the laws authorizing refunds of gasoline tax be repealed, and that with the funds derived from two cents of this tax together with the \$500,000 annual appropriation from the highway fund for county roads, which should provide an adequate fund, the State take over the full maintenance of the county road systems."

NORTH CAROLINA'S EXPERIENCE WITH COUNTY ROAD MAINTENANCE

By

Leslie R. Ames

State Highway Engineer

AS a direct result of this message the General Assembly passed the State Road Law under which the State Highway Commission is now operating and is maintaining not only 10,000 miles of roads on its State Highway System but has under its direct

control the maintenance of all County Roads as well—totaling 46,183 miles.

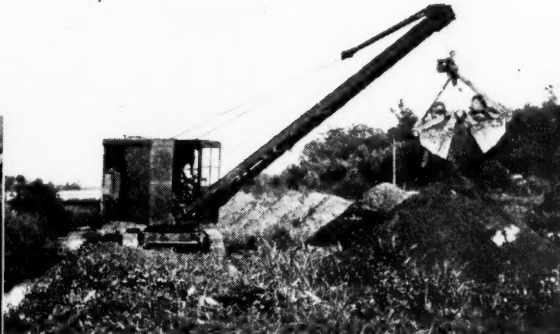
This law was passed on March 20, 1931, and became effective on July 1, 1931. So we can now speak of its operation after more than twelve months experience.

The law which turned over to the State Highway Commission the exclusive control and management and responsibility of all public roads in the State also provided that the Boards of County Commissioners and the several County, District and Township Highway or Road Commissions in each county should also turn over to the State High-

way Commission all road machinery, equipment, teams, materials and supplies of every kind on hand or belonging to said Commissions and acquired by them from road funds. The law provided that an inventory should be taken of all such supplies and material but did not provide for any payment thereof to the counties.

Another section of the law authorized the transfer of all county prisoners, sentenced to serve 60 days or more, to the State Highway Commission. These prisoners numbered 3715 on July 1, 1931.

The prisoners are housed, fed and maintained in modern sanitary and fire-proof camps by the Prison Department and are worked by the Maintenance Department in squads of about 20. These squads or floating gangs are used both on County and State highways for ditching, shrubbing, loading local surfacing



material and some few are used in quarries.

The organization established for maintaining both County and State roads is briefly described as follows:

The State was divided into five divisions averaging twenty counties to the division—there being a total of one hundred counties in this State. A Division Engineer with one assistant and the necessary clerical assistance is maintained in each Division and has direct charge and responsibility for all maintenance work in his territory. This in turn gives to each Division approximately 11,000 miles of highways—2000 miles of which are on the State Highway System and the remainder are county or local roads. Each Division in turn is divided into five districts with a District Engineer in charge, who is assisted in most cases by two assistant district engineers. This makes a total of 25 districts averaging four counties to the district.

Both State and County highways are laid out in sections for maintenance purposes, the State sections averaging 40 miles in length and the County sections averaging 100 miles. A Section Foreman is placed in charge of each section with one or two helpers, depending on the type of section to be maintained and equipment used.

Due to the generally poor condition of county equipment taken over it was necessary for the State Highway Commission to purchase new equipment during the past fiscal year totaling \$880,000.

Sleeping Quarters of a Convict Prison Camp



Left—Spreading Sand on Iredell County Road. Center—Excavating Sand From Stream With Gas Shovel to Be Placed on County Roads. Right—Floating Gang and Tractor Crew Widening County Road

It is anticipated that this expenditure will be cut at least 50 per cent during the present fiscal year and in all probability even a greater saving can be made in this cost.

All county bridges on the system have been examined on the ground by field force of engineers after which load limit



Regrading Road in Caswell County, N. C. New bridge has been built about six feet higher than old structure. Work was done with tractor, trucks and convicts

signs were posted and a detail record is on file of the exact condition of these bridges. As may be well imagined a large number of the approximate total of 15,000 bridges on the County System of Roads were in a dangerous condition and needed immediate attention.

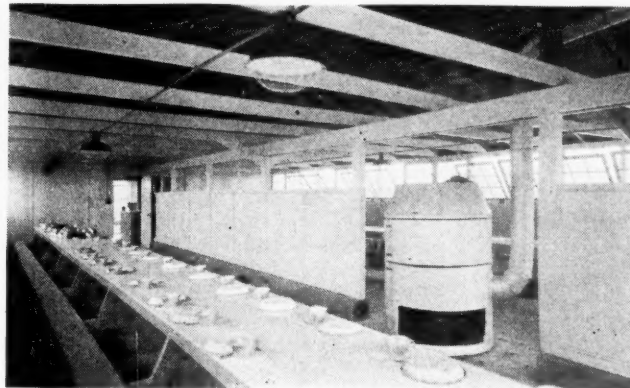
Directional signs and a number of caution signs have been placed on practically all county roads and these signs have proven to be one of the many popular features of State control.

The Motor Equipment Department, as all other departments, operates under a budget. The first cost of all trucks, tractors, motor patrols and other equipment is charged direct to this Department. In turn the equipment is rented to the Maintenance Department on a per diem basis, which rental is set up to cover the cost of maintenance and depreciation.

The Prison Department operates on a similar basis. The housing, feeding, clothing, etc., being charged direct to this Department and all able-bodied prisoners are in turn worked by the Maintenance Department on an hourly basis. Time being charged only for the actual hours the prisoners are at work and the Prison Department Account is credited with this charge. This Department has established 68 prison camps—30 of which are of the type shown in the accompanying photograph.

A preliminary annual financial report made by our Auditing Department, which report is subject to minor corrections, reveals the fact that the first year's expenditures for County road construction and maintenance totals \$6,170,000; whereas from the best information which could be obtained the previous year's expenditures under the old system were \$8,233,280.93.

Dining Room of the Convict Prison Camp



MISSISSIPPI'S NEW GLASS INDUSTRY

Results of Development of State's Natural Gas Resources

By
Wendell W. Black
Jackson, Miss.

ESTABLISHMENT of a new industry is real news these days, and the opening of the Dixie Glass Bottle Mfg. Co. factory at Jackson, Miss., is that and more, for it is the first industry of its kind in the state and it is the first plant to begin operations as a direct result of the development of the natural gas field at Jackson. The Jackson gas field, opened up in February, 1930, now has 88 producing gas wells with a daily production of about 3,000,000,000 cubic feet. Less than 20 dry wells have been drilled in bringing in this latest gas field, which is located in the eastern part of Hinds county and the western part of Rankin county, Mississippi. The field has an area of approximately 21 square miles, about two-thirds of which is within the city limits of Jackson.

The Dixie Glass Bottle Mfg. Co. was organized in 1930 by a group of Jackson business men who later interested a

number of people from various parts of the state in the possibility of making glass with natural gas as a fuel. Modern machinery is used throughout. The melting tank was installed by the Toledo Engineering Co., Toledo, Ohio. The automatic blowing machines, designed to produce practically any type or size of bottle, was installed by the Lynch Corporation, Anderson, Ind.

The initial operation was begun with the use of cullet, or broken glass, obtained from Birmingham, mixed with a high type of sand obtained in Illinois. Recent investigations have disclosed the fact that Mississippi provides a sand adaptable for glass-making, and future operations of the Dixie plant will include the use of Mississippi sand as well as Mississippi natural gas.

The melting tank, which requires three weeks to bring to its operating temperature, holds 30 tons of molten glass. The

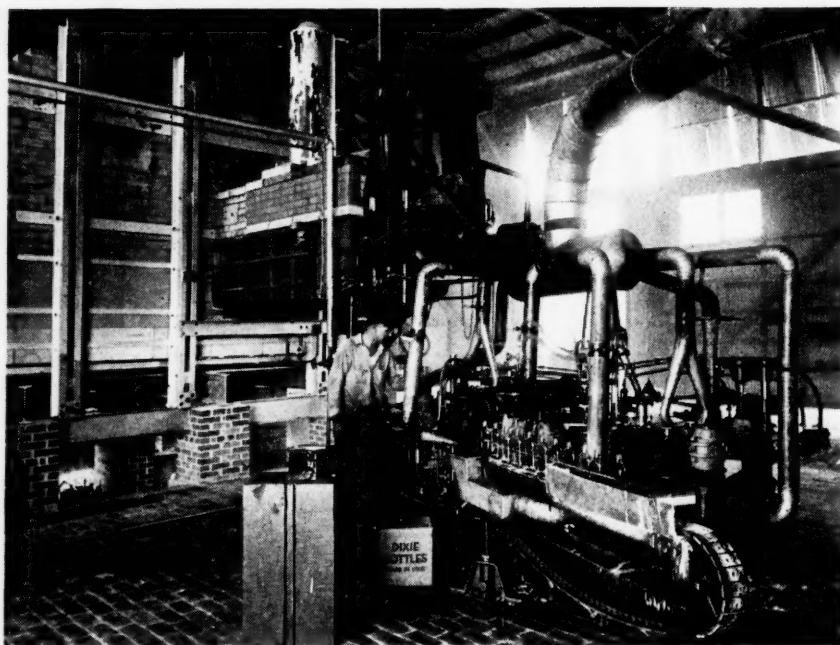
molten glass passes from the tank through a feeder to the automatic blower, which produces 28 bottles a minute and is said to take the place of 40 glass-blowers. The bottles are removed from the blowing machine to the annealing oven or lehr, which permits gradual cooling, the process requiring 8 hours.

The plant is operating 24 hours daily with three shifts of 8 hours each. It has been so designed that production may be doubled by installing a duplicate automatic blowing machine.

The plant is now producing beverage

Automatic Glass-Blowing Machine

This mechanical unit, capable of turning out 28 bottles a minute, is said to perform the work of 40 glass-blowers. Molten glass from a 30-ton melting tank passes through a feeder, which weighs the glass to a fraction of a dram and allows it to pass to the blowing-machine



Glass Annealing Oven

Fired by natural gas, this unit is designed to anneal the glass bottles after they have been blown to shape in the automatic machine. The operation requires about 8 hours

bottles and orders already obtained assure capacity operations for an indefinite period. Several large orders have been turned down due to the fact that they were too big to produce with the present equipment.

Officers and directors of the company include: W. M. Snyder, president; David H. Rice, secretary and treasurer; E. H. Bradshaw, Dr. J. O. Segura, Major Geo. L. Donald, R. H. Green, T. W. Crockett, DeWitt C. Enochs, T. B. Cabell, J. Y. Downing, Mrs. P. O. Roestream, A. L. Worrell and Edward Hutson.

SANTA FE STATION AND OFFICE BUILDING

As tangible evidence of its faith in the industrial and commercial future of Galveston, the Gulf, Colorado and Santa Fe Railway Company recently completed in that city a modern union station and headquarters building. Combining beauty and utility, the attractive structure is one of the outstanding buildings of Texas. Although the south wing appears to be, and actually is, an integral part of the completed structure, it was completed several years ago. The design and construction of the addition was so handled as to give the appearance of an entirely new building.

The addition is 8 stories, 100 by 76 feet, connected with the 8-story south wing by a central tower 11 stories high, 81 by 53 feet. The structure is supported on a pile foundation with reinforced concrete caps, piling, 30 to 40 feet long, being so driven that the tops are about 2 feet below mean low tide, and on these reinforced concrete pedestals were placed. These support the structural steel frame, columns and beams.

Architecture is modernistic with few ornamental details, but depending upon the mass for architectural effect. Fireproof construction was employed throughout, all structural steel members being encased in Portland cement concrete having a minimum thickness of two inches. Floor slabs are of tile and joist construction, and exterior walls, except the west side of the 8-story wing, have a matte finish terra cotta facing, backed by common brick. Floors are finished in marble, terrazzo, cement and asphalt tile, while walls of the station waiting room and elevator corridors above the first floor have a marble wainscot with plaster above. Walls of the first floor elevator lobby are finished in Travatex and all rest room walls in glazed tile wainscot. Front entrance doors are of hollow construction of monel metal, with doors leading to stairways and file rooms of Kalamein. Vaults are equipped with standard vault doors and all other doors are of wood finished in quarter-sawn white oak. Interior trim is also of quarter-sawn white oak.

The building is equipped with a low

pressure steam heating system, and electric drinking fountains have been installed in station waiting rooms and corridors, water being supplied by a circulating system independent of other water lines. Three passenger elevators were installed, two electric dumbwaiters, pneumatic tube system, electric lighting, ceiling fans, ducts for telephone wires, buzzers, desk lights and fans.

Plans for the addition were prepared under the supervision of E. A. Harrison, architect of the Santa Fe System, Chicago, and general contract executed by Robert E. McKee, El Paso, Tex. Construction was supervised by K. B. Duncan, chief engineer of the Santa Fe System, and O. C. Patterson, assistant engineer.

Major Sub-contractors

Heating and plumbing—G. D. Harris & Co., Dallas

Elevators—Otis Elevator Co., New York

Piling—Kirby Lumber Co., Houston

Structural steel—Houston Structural Steel Co., Houston

Steel erection—Gulf Coast Erection Co., Houston

Pile driving—E. A. Whitney & Son, Inc., Kansas City, Mo.

Marble—Vermont Marble Company of Texas, Dallas

Reinforcing steel—Truscon Steel Co., Youngstown, Ohio

Miscellaneous and ornamental iron—Weaver Ornamental Iron Works, Dallas

Terra cotta—Northwestern Terra Cotta Co., Chicago

Glass and glazing—Pittsburgh Plate Glass Co., Houston

Vault doors—Neff-Stiles Co., El Paso

Granite—Gulf Granite Co., Houston

Limestone—Bedford-Carthage Stone Corporation, Houston

Dumbwaiters—Active Elevator Company, Philadelphia, Pa.

Tile and terrazzo—International Tile Company, Houston

Travatex—Travatex Products Corporation, Chicago.



DUKE UNIVERSITY COMPLETES \$2,000,000 CHAPEL

THE magnificent chapel recently completed by Duke University, Durham, N. C., at a cost of \$2,000,000 is illustrative of the better type of modern construction now being undertaken in the South. The new chapel is the central and dominant unit of the University group of buildings which have been erected in recent years. As a whole and in detail, it is a work of art, comparing with the finest in the world and representing the best in English Gothic architecture.

The structure is 275 feet long, 63 feet wide over the side aisles of the nave, and 121 feet wide over the transepts. The nave is 38 feet wide and 73 feet high; the tower is 35 feet square at the base and 210 feet high, and the memorial chapel measures 38 by 50 feet. Cruci-

form in plan, the chapel consists of a narthex formed by the tower, a nave of six rectangular bays, a square crossing with transepts at the east and west of two bays each. Beyond the crossing is a choir of three bays in depth, and to the west of the choir and beyond the west transept is the memorial chapel, while to the east of the choir are the vestry and choir room. A doorway in one of the west transept arches leads to a stair descending to the crypt which occupies space directly below the memorial chapel. Seats have been provided for approximately 2300 in the nave and transepts.

Walls of the building were constructed entirely of rubble stone quarried by the E. H. Clement Company, Charlotte, on land belonging to Duke University at Hillsboro. Indiana limestone was used for trim. The carved stone rail of the chancel terminates on the right with the pulpit and on the left with the lectern, all of which are in white statuary lime-

**Dominates Campus Group of
Duke University, Durham, N. C.**



Interior View of Chapel

stone. Over the pulpit is a suspended canopy of wood of light and racy design, in which buttresses building up the design to its culmination, support the figure of Christ. Each buttress carries one of the seven Archangels. In the base of the lectern are three figures, the central one of which represents Ambrose, known as the father of church music.

In the choir much of the richness and glory of the church is concentrated. The focal point is the great reredos directly in front and surmounted by the chancel window. On each side are canopied choir stalls lining the walls as far as the chancel piers. Over the stalls at the south end of the chancel are cases for the organ which give a distinct tone of richness. In the center of the reredos and forming the heart of the whole design are three sculptured panels depicting three important events in the life of Christ—Christ with the doctors in the temple, Christ before Pilate, and the Entombment.

The beauty of the stained glass is impressive. Seen through the lower arches are the aisle windows which depict a complete story of the life of Christ.

The belfry of the tower houses the great mass of bronze bells comprising the carillon—a gift of George G. Allen and William R. Perkins, of New York, trustees of the Duke Endowment. There are 50 bells in the group, ranging from 10 pounds to 6 tons each. The carillon may be played by hand from the clavier or by music rolls from an instrument in the choir room. The organ is an integral part of the building, ranking in size among the largest and best installed in American college chapels.

Horace Trumbauer, Philadelphia, was the architect for the structure, with A. C. Lee serving as chief engineer for the University. General contractors were the Duke Construction Company, Durham.

A Southern Cotton Mill
The South produces a major portion of
the cotton goods made in the U. S.



AGRICULTURE IS THE FOUNDATION OF MANUFACTURE AND COMMERCE

By
Charles D. Bohannon

THE title of this article, taken from the great seal of the Department of Agriculture, expresses a truth which has peculiar significance in our present economic situation. It has frequently been reiterated by historians, statesmen and others in varying forms. Gibbons said, "Agriculture is the foundation of manufacture and commerce." And again by Daniel Webster in the following words, "Agriculture, manufacture, and commerce are all entwined about the same column and supported by the same trunk and must flourish or fade together." Statesmen and politicians in making these statements no doubt thoroughly believed them. However, judging by the resulting legislation and the attempts to develop a sound economic policy for the nation, we are forced to conclude, not that these persons did not believe the statements, but that they did not fully appreciate what they believed when they made them.

So engrossed have some of us become with the economic importance of industries and big cities, that we often find business men and their legislative representatives prone to think of all legisla-

tion for agriculture as being class legislation. Opposition to agricultural legislation and our failure in general to do those things essential to secure agricultural economic soundness are based on the fact that we have not yet grasped the elemental truth, that with the cityward trend and industrial development a constantly increasing proportion of our population has become dependent on the farm production of the dwindling remainder. If this reduced percentage of agricultural producers are to continue to be in position to support the tremendous superstructure of industry and commerce, which in the last analysis must rest on agriculture, they must have the very highest quality of educational, social, and economic opportunities.

The present collapse or partial collapse of our economic structure could have been averted or at least its effects minimized had we not forgotten this fact and allowed our development to become top heavy.

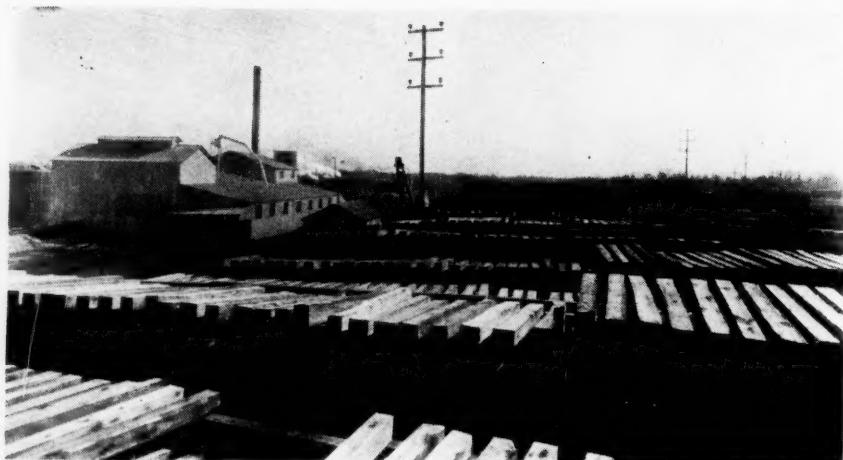
Whatever affects the life and buying power of our agricultural citizens affects vitally all manufacturers, wholesalers, and retailers, who depend upon it to any degree; and through them all other makers and purveyors of goods, as well as the whole vast organizations of transportation, communication, finance, and credit. This fundamental fact needs to be driven home to all. If business men

and city dwellers in general once get thoroughly in mind the fact that national prosperity and economic soundness are impossible without an economic soundness in our agricultural system, they will be in the forefront of the proponents of sound agricultural legislation instead of, as is all too frequently the case, doing everything possible to block it.

Herein are set down some of the factual data indicating the fundamental character of agriculture in our national welfare. If the significance of this truth were once grasped not only by statesmen but by business men and others, it would lead to the definition of a national economic policy and the enactment of state and national legislation which will go far toward correcting the present economic chaos as well as toward the prevention of future recurrences thereof. The ramifications of the influence of agriculture on manufacture and commerce are too widespread and intricate to be traced out in detail. However, the following facts, which do not seem to be matters of common knowledge on the part of manufacturers and other business men, should serve at least as a corrective for some of our loose agricultural thinking.

One-Fourth of the Population Produces the Basic Materials for the Nation's Food and Clothing

From the efforts of the 25 per cent of our population now living on farms must come the bulk of the food supply of the nation, as well as the raw materials for textiles, to mention but one of the many



A Tennessee Creosoting Plant
The South annually produces \$1,177,000,000 of manufactured products from its forests

products fabricated from agricultural commodities. This is a common fact well known to many. However, its significance in terms of national planning does not seem to have been grasped except by few. It may be that the following statements, giving actual figures on the growth of cities and on the tremendous quantities of food supplies annually laid down in some of these cities will assist in making its significance more clear.

While the Census figures on population prior to 1929 are not such as to enable us to trace decade by decade the constant downward trend of the number of persons living on farms, they do furnish data on the growth of cities.

From 1890 to 1920 the number of towns and cities having a population of 2500 or more increased from 1417 to 2787; and the last Census of 1930, showed a further increase to 3165. Thus, while in 1890 slightly over 35 per cent of our population lived in cities of 2500, or more, this percentage increased to slightly over 56 per cent in 1930.

The cityward trend of our population takes on added significance when we examine the increase in the number of the larger cities—that is over 100,000 population. There were only 28 such cities in 1890, and the Census for 1910 showed an increase to 60, while in the next 20 years an additional 43 were added to the list, so that in 1930, 39.6 per cent of our population lived in these larger cities. Furthermore, many of the cities which had reached the 100,000 mark in the earlier census periods had expanded enormously by 1930. With a constantly larger percentage of our population living in the cities, the very highest importance attaches to so shaping our national economic life as to facilitate the development of a high type of agricultural production and a high

standard of living among our agricultural producers.

Data are not available to show in complete detail the city consumption of food products. A partial picture of the situation is given by the number of carloads of some of the more important foods received annually by some of the larger cities. Furthermore, even this partial picture gives us a good idea as to the importance of farming in keeping our cities going.

Fruit and Vegetable Consumption

In 1929, 12 cities, all considerably over the 100,000 mark, took a total of 427,940 carloads of the 18 most important kinds of fruits and vegetables, while for the same year the total number of unloads of these same 18 kinds of fruits and vegetables for all markets reporting was 683,325 carloads.

Egg and Poultry Consumption

In 1929 Boston received 1,718,000 cases of eggs, from 14 different states; Philadelphia received 1,697,000 cases of eggs from 17 states; Chicago, 4,398,000 cases from 13 states; New York 7,129,000 cases from 20 states, including states

the equivalent of the total egg production of a very great many farms. In fact, New York's eggs alone were equivalent to more than the entire number of eggs sold by farmers in the two States of Nebraska and Iowa. In the same year the combined receipts of dressed poultry at Boston, Philadelphia, New York and Chicago totalled about 369,000,000 pounds.

Butter and Cheese Consumption

New York in 1929 received 51,000,000 pounds of cheese from 15 different states and Canada and 265,000,000 pounds of butter from 29 states and Canada. The Boston market area received approximately 15,000,000 pounds of cheese from 11 states and Canada and 81,000,000 pounds of butter from 21 states. Philadelphia received 20,000,000 pounds of cheese from 9 different states and Canada, and over 87,250,000 pounds of butter from 21 different states.

If we add to the data on butter and cheese the tremendous quantities of fluid milk and cream going into these markets, and if we further stop to realize that there are many other large cities, each of them requiring their quota of dairy products, we get an added sense of how dependent cities are on dairy farmers and their output. There are a great many other persons concerned from farm producers to city consumers, including the butter and cheese factories, transportation companies, wholesalers, retailers and the like; but after all, their businesses and that of the concerns which supply the dairy farmer with equipment, machinery and supplies cannot prosper unless the dairy farming industry prospers.

Agriculture—the Foundation of Manufactures

The truth of this part of the title of this article is amply attested by the ac-

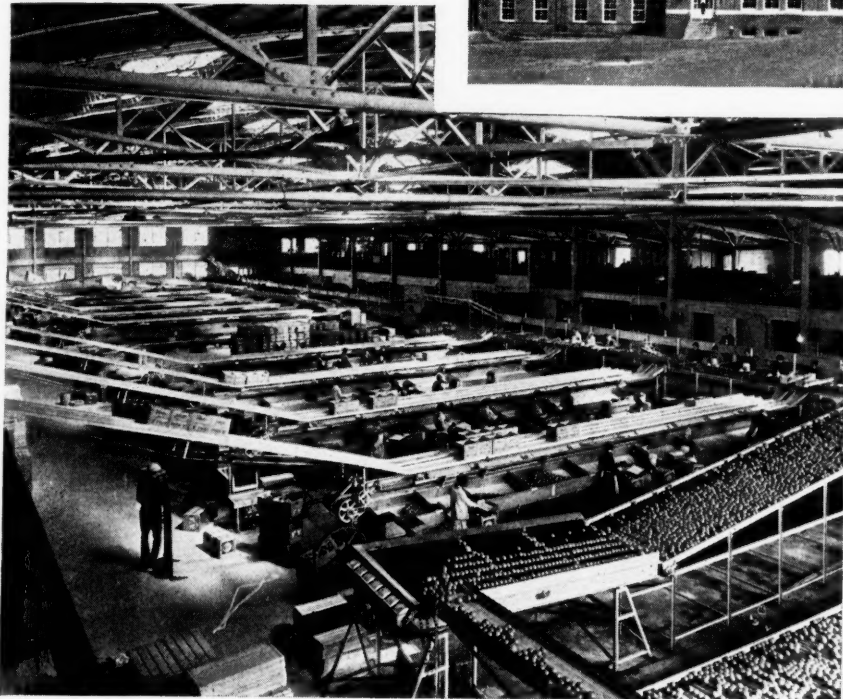
The Proportion of Total Manufacturing Represented by Industries Utilizing Chiefly Agricultural Commodities (Other Than Forest Products)

Kind of Manufacturing	No. of Industries	No. of Establishments	Wage Earners	Wages	Cost of Materials	Value of Products
Total for all manufacturing industries	196	206,556	8,742,761	\$11,421,631,054	\$37,730,454,799	\$69,417,515,929
Total for industries using chiefly agricultural commodities	74	70,456	2,434,776	2,545,134,137	13,361,231,172	20,939,550,041
Per cent of totals.....	38	34	28	28	35	30

as far away as Washington and California. When it is remembered that each of these cases contains 30 dozen eggs, it is readily apparent that to supply just these four larger cities would require

companying data on manufacturing industries, giving in a separate category the data on the industries depending chiefly on agricultural commodities for their raw materials. Of the 196 indus-

Interior Modern Citrus
Packing Plant in Florida



Food Processing Is a Fast
Growing Industry in the
South

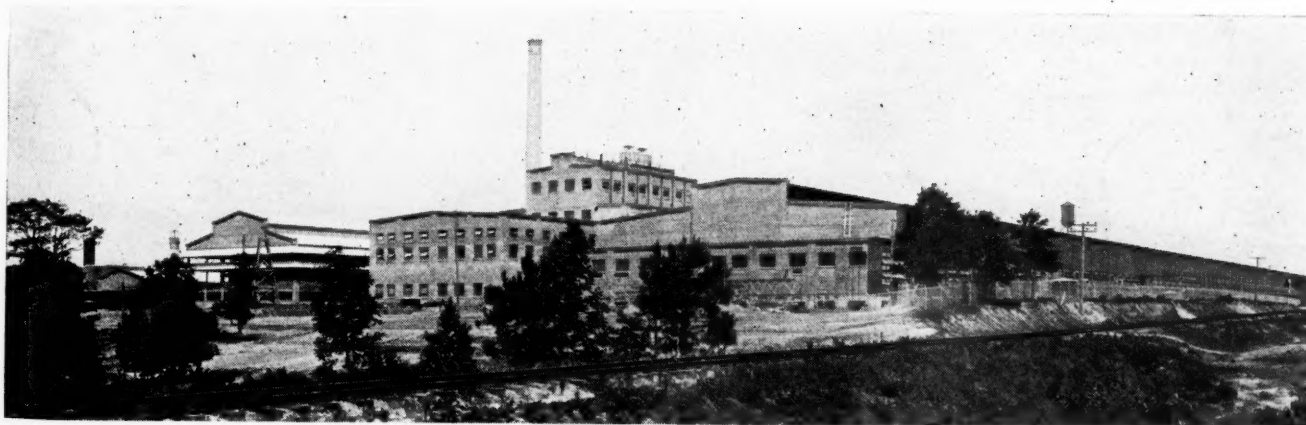
Commercial canning and
prepared food production
valued at more than \$100,-
000,000 annually

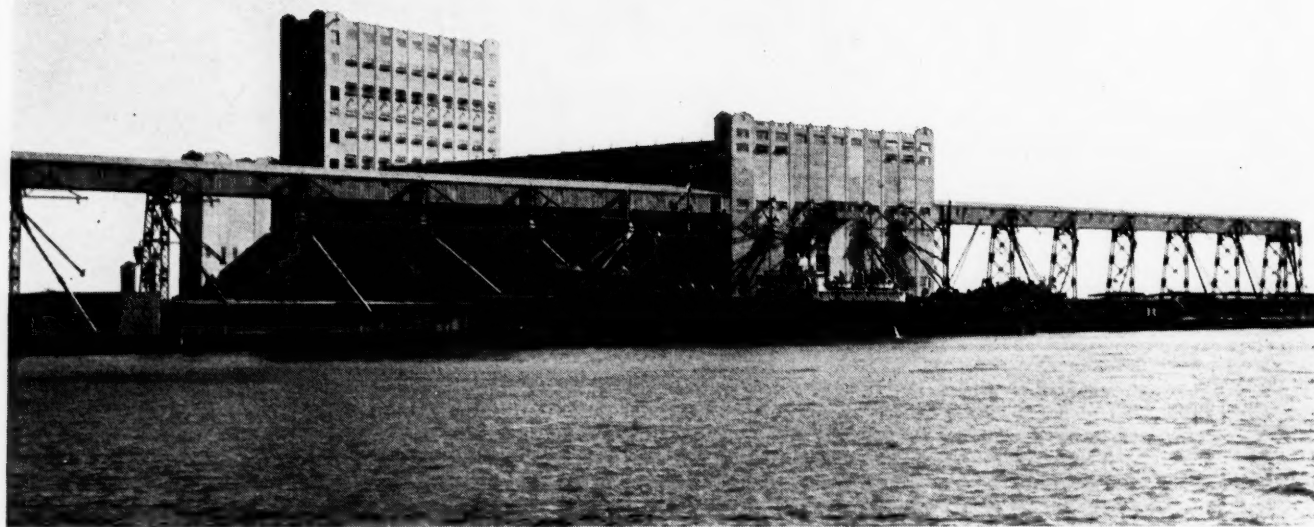
A Presdwood Building
Board Plant of the South



One of the Larger Paper
Mills of the South

The South is the dominant
kraft paper manufacturing
region of the country. Re-
cent experiments indicate
that white paper and news-
print can be made from its
practically inexhaustible
pine forests





trial classifications listed by the Census of Manufactures 74, or 38 per cent, fabricate their wares almost exclusively from agricultural commodities; and the value of their output represented 30 per cent of the total value of all manufactured products. It should be noted that these 74 industrial classifications in the agricultural group, are exclusive of those utilizing forest products. If these be included, the value of the output of manufacturies dependent on agricultural commodities as their chief source would be 34 per cent of the total, and the wage earners employed would be 35 per cent of the total. These figures tell but part of the story since there are many others which either use some agricultural commodities in their processing or else use the partially finished products,

Vegetable, Fruit and Egg Packing Grows

Trucks and touring cars bring eggs to this plant from surrounding counties in two States. One egg powder and canning plant has a capacity of 25,000,000 eggs a year



of the industries which do use chiefly agricultural commodities. Further, these other manufacturing industries include the fabricators of machinery and supplies used by factories processing or manufacturing agricultural raw materials. Included here would be the makers of equipment for dairy products factories, grain elevators, cotton gins, canning equipment, textile machinery and the whole range of supplies such as cans and other containers, oils and lubricants, labels, etc. Unfortunately the data are not available to present this matter in all its detailed ramifications including the dependence of producers of raw materials such as iron and steel, etc.

In addition, consideration should here be given to the industries making farm implements and supplies, including makers of farm machinery, fertilizers, windmills, and similar equipment. The total output of such factories which can be definitely identified as being engaged in the manufacture of farm supplies and

A 6,000,000 Bushel Grain Elevator Recently Completed at Galveston

Through Southern ports pass one third of the nation's exports, agricultural products forming the major part

equipment was \$1,323,868.621. It is, of course, well known that the automotive industry, both makers of passenger cars and trucks, depends on farmers for a large share of their business; and this in turn, of course, vitally affects the automobile supply and equipment industry.

Agriculture—the Foundation of Transportation and Trade

Adequate data are not available to present a completely filled in picture of agriculture as the foundation of Transportation and Trade. However, the partial data available give some slight idea of the importance of agricultural commodities and their products in furnishing transportation tonnage. This, of course, in turn is reflected in railway wages, coal and other fuel consumption, and in the activities of the makers of railroad cars and equipment as well as those engaged in the manufacture of ice and other refrigerants, telegraph and telephone companies, and concerns engaged in finance and insurance.

Reference has been made to the annual car-lot receipts of fruits and vegetables in the larger cities. Transportation of meat animals in 1929 contributed over 14,250,000 tons of revenue freight, and fresh meats and other packing house products contributed an additional 5,250,000 tons. The grains accounted for 52,367,000 tons; and flour and other grain products, 21,447,000 tons.

There needs but little thought to realize that even from the data on these few commodities that agriculture and

its products, either in their raw or processed or manufactured stage, are of prime importance to transportation companies and the allied equipment and supply industries. Large quantities of agricultural commodities, prepared foodstuffs, textiles and the like move by express and truck.

Agricultural commodities and the wares produced therefrom not only furnish the basis for a large share of manufacturing and transportation; they also pass through the hands of many persons engaged solely in their buying and selling from producer to manufacturer, or from wholesaler to retailer, or from retailer to consumer. The first Census of Distribution is showing the great importance of agriculture and its fabricated products in the total commercial life of the nation. Bearing on this, the following summary for four states of leading importance in wholesale trade is of interest:

Not only is the total wholesale business in these commodities important, but



Newly Erected Thread Mill in Georgia
The South has 1750 textile plants, 16,435 cotton gins and 495 cotton seed oil mills, and is the dominant cotton manufacturing section of the country

wholesale business. As to the retail business, which is based on agriculture and its products, suffice it to say that for three chief kinds of business which handle such commodities the total sales represent 35 per cent of the total retail business of the United States. If detailed data were available showing the amount of sales of foodstuffs, clothing,

concerns and organizations which supply them with equipment, materials and necessary services, that it is not possible in a brief summary to present a complete picture of the importance of farms and their products in the economic life of the nation. The object has been to present rather the high points of the data on some of the lines of business which can definitely be shown to depend on the productive activities of our farmers. Further, but brief mention can be made of the tremendous quantities of supplies and equipment, as well as of other kinds of merchandise, purchased by farmers and their families. Even with these partial data in mind, we must conclude that after all, "Agriculture is the foundation of manufacture and commerce." The evidence unmistakably points to the conclusion that economic soundness for agriculture is a sine qua non for the welfare and prosperity of all the other elements in our national economic and social structure.

Wholesale Establishments Handling Agricultural Commodities and/or Products Manufactured Therefrom

State	Number of Establishments	Sales	Per Cent of Total Wholesale Business	Employees	Salaries and Wages
Ohio	2,861	\$820,592,135	26.5	19,038	\$29,675,840
Missouri	2,918	1,808,803,387	53.8	29,324	51,743,150
Illinois	4,827	3,040,790,639	44.3	60,867	115,419,708
Massachusetts	2,597	1,607,798,560	52.4	27,834	54,778,325

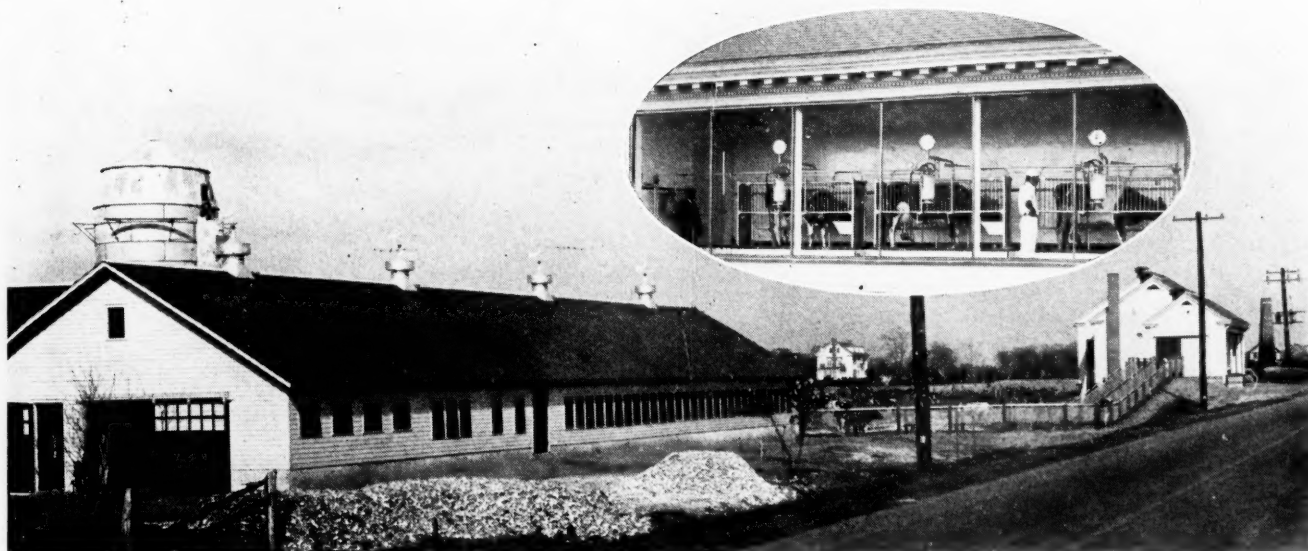
it is of interest to note that in Ohio this constitutes approximately one-fourth of the total wholesale business of the state. In each of the other three states it constitutes practically one-half of the total

etc., by department stores, general merchandise stores, and others, this total share of retail trade which is based on agricultural commodities and their products would be found to be much larger.

So numerous and diversified are the industries and agencies engaged in their assembling, manufacturing and distribution; and so far reaching in turn are the effects of these businesses on the

A Modern Dairy Farm in the South

Many commercial creameries, condensed milk and cheese making plants have been established in recent years



SOUTHERN LUMBER INDUSTRY MODERNIZES

By

Alex H. Stephens

Advertising Manager,
Moore Dry Kiln Company,
Jacksonville, Fla.

It is encouraging to see the initiative and aggressiveness with which leaders of the Southern lumber industry are girding themselves to meet modern competition, after several successive years of profitless production, demoralized marketing and other reverses.

Let it be remembered that the lumber industry is and has long been one of the largest employers of labor in the South—its product one of the most valuable.

During the past six to twelve months many manufacturers have inaugurated programs of modernization which include installing new machinery, remodeling equipment, re-designing of layout and manufacturing and handling facilities, which enable them to produce a higher quality of lumber, and in many instances at a reduced cost. This matter of "improving the quality" of its product has been the keystone of the whole project as the industry realizes now that a high standard of quality, uniformly maintained, is the best weapon with which to meet competition.

The entire lumber industry of this country is more keenly interested in modernizing manufacturing facilities than ever before. It is significant that the chief aim of the industry now is not to devise ways and means of increasing production without regard to consumer demand, but to improve the quality of its product and at the same time lower its cost of production. The entire industry is manifesting a keen interest in research to develop new uses for lumber, in trade extension and the finding of new markets, in modern merchandising methods by which it can sell its product competitively, at a profit.

Particular attention is being paid to the kiln-drying equipment, for in the

past, indifferent seasoning of lumber has led to the loss of lucrative markets chiefly to substitutes. The past few years have seen a steady increase in the demand for "dimension stock" or lumber that is cut to specifications. Now there is a rising demand for lumber that is kiln-dried "to specifications" and to meet this demand the lumber industry has found it necessary to install the latest, improved dry kiln facilities.

In many instances it has been found practical to remodel and modernize present plant and kiln equipment; in others, complete new installations have been made. In the following is listed a few of the aggressive mills in the South that have recently completed or are now installing modern equipment:

Wier Long Leaf Lumber Company is now installing a high-powered Moore Reversible Cross-Circulation Kiln at its Wiergate, Texas, plant to dry both lumber and heavy timbers. This matter of kiln-drying timbers is comparably new to the industry, but it has been found entirely practical to kiln-dry them and there is a profitable market for such stock. Temple Lumber Company, another prominent manufacturer of both pine and hardwood lumber, is likewise remodeling a kiln at its Hemphill, Texas, plant. W. M. Ritter Lumber Company has just completed a new mill at Tillman, S. C., including four modern kilns.

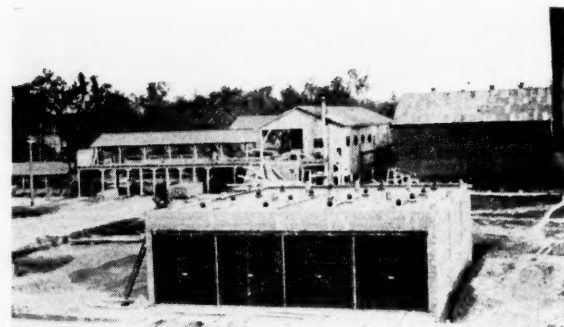
Anderson-Post Hardwood Lumber Company, Kurthwood, La., is completing the remodeling of one of its kilns and a few months ago Natabany Lumber Company at Hammond, and Great Southern Lumber Company at Bogalusa also modernized their kilns.

J. R. Buckwalter Lumber Company, Union, Miss., has completed the erection of a new mill at Edinburg, including two high-powered new kilns for seasoning its lumber to the moisture content desired by the trade. Bierne Lumber Company, Bierne, Ark., is now building a new mill, including two of the latest type, high-powered kilns. Rockwell Manufacturing Company at Camden, Ark., recently completed the remodeling of one of its kilns to dry both lumber and veneer.

Cherry River Boom & Lumber Company, Richwood, W. Va., has completed the installation of a large, progressive-type Moore Reversible Cross-Circulation Kiln for drying Appalachian hardwoods green-from-the-saw and Hassell Lumber Company, Collinwood, Tenn., is now installing a kiln of the same system for drying hardwoods, also pine. E. M. Frazier Company, Linden, Ala., likewise is installing a modern kiln for drying green gum squares and other dimension stock.

Jerome H. Shelp Company, Inc., cigar box manufacturer of Apalachicola, Fla., is remodeling one of its old-style kilns to the modern system. Within the past few months D. W. Alderman & Sons Co., Alcolu, S. C., has installed a battery of four of these modern kilns to dry gum flooring, maple and pine green-from-the-saw.

There are many more, both large mills



New Mill, Including Battery of Latest Type Kilns, at Tillman, S. C., of the W. M. Ritter Lumber Company

and small, making plant improvements. By keeping the quality of its product high, and paring costs to the bone, the South's manufacturers confidently expect to regain the markets that have been lost to substitutes.

Another tendency worthy of note, is the reversion to the use of low-cost wood-frame construction for the kiln buildings. With the savings effected by the use of practical, low-cost buildings, even the smaller manufacturers are able to install in such buildings a high-powered and efficient kiln system.

The Veneer industry which includes the manufacture of baskets, hampers, crates, etc., has been making progress. In the South, which is one of the largest fruit and truck producing sections, one would naturally expect to find this section a large producer of packages.

Among new plants in this field are Southern Container Corporation at Jacksonville, Fla., which has recently completed a new plant, including a Moore Veneer Dryer, also the Stilley Plywood Corp., Conway, S. C., made a similar installation. Georgia Veneer & Package Company, Brunswick, Ga., McComb Box Company, Fernwood, Miss., Mach Lumber & Crate Co., Kissimmee, Fla., S. O. Shinholser, Sanford, Fla., Franklin Lumber & Basket Co., Micanopy, Fla., and Avon Mfg. Company, Avon Park, Fla., are other manufacturers of veneer and baskets making recent plant improvements, including modern veneer and basket drying equipment.

The development of a high-powered conveyor basket dryer has been a boon to manufacturers of bushel, berry and till baskets. Among manufacturers of baskets making recent improvements in the way of improved drying equipment are Planters Mfg. Company, Portsmouth, Va., Farmers Mfg. Company, Norfolk, Va., and Riverside Mfg. Company, Murphreesboro, N. C. Corbett Package Company at Wilmington, N. C., has also installed modern drying equipment recently.

JOSEPH T. RYERSON & Son, Inc., Chicago, Ill., are distributors of iron, steel and machinery. This year the firm is celebrating its 90th Anniversary, a long and honorable record for any business enterprise.

The two pictures we are printing are interesting from a standpoint of history and accomplishment, because they are typical of American spirit and initiative, which has not been greatly manifested of late, but which may of a certainty be depended upon to assert itself in the rehabilitation of commerce and the country's development.

It has been said that every successful enterprise is, after all, the lengthened shadow of a man, but in such a long and honorable career as the one before us, there is reflected the hopes and ideals and purpose not only of one man, but of succeeding generations evidently moved by the spirit he manifested of carrying on.

Business is not without its romance—the romance of human experience, and

to students of business, especially the younger generation, those who are graduating from our colleges and entering upon a world full of doubt and obscurity as to the path ahead, there must be found inspiration in this story of ninety years.

The two pictures shown mark the development from 1842 to the present date.

This business has succeeded because it has given service when and where needed. It carries an extensive stock of material for quick shipment and has proven distinctly and without room for argument that the middleman, certainly in steel and iron products, has a valuable and necessary place. The far flung reach of the enterprise appeals to the imagination. With its great warehouses

scattered about the country it enters very importantly into the life of ten metropolitan centers.

Starting in Chicago in 1842, the Chicago Fire in 1871 completely destroyed the building and stock. A new store was built and this was outgrown in a few years, demanding larger premises. The growth of the business was steady and demands for additional space insistent. In 1902 complete new warehouses were erected and in 1914 a policy of expansion was adopted, extending the business to the operation of large plants and warehouses in various other cities.

A steel-service plant was built in New York. Next came the purchase of the old firm of W. G. Hagar Iron Co. at St. Louis. In 1917 the Detroit plant was built. Following this the Ferguson Iron and Steel Co. of Buffalo was purchased. Then came Cincinnati in 1923, Milwaukee in 1925, with Boston following in 1926. In 1927 the Bourne Fuller warehouses at Cleveland were taken over and in 1929 Philadelphia saw the establishment of a plant.

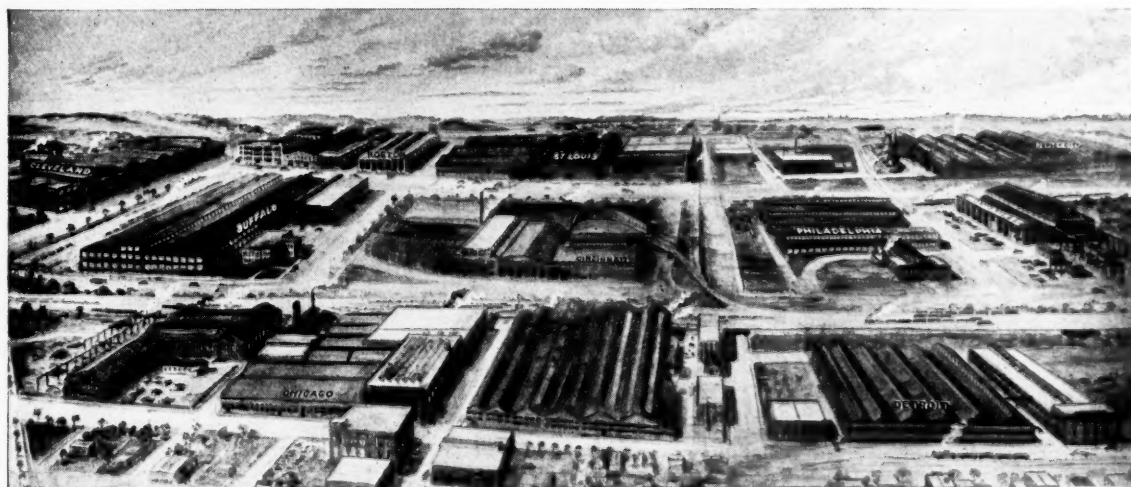
The business is divided into various divisions—Steel Division, both general, special and cold finished; Reinforcing Division; also a division for Railroad Sales, Mill Orders, Machinery and various others. Equipment of the plants for cutting and sawing and designing material to suit the needs of buyers is complete. Giant shears, high speed friction saws, giant traveling cranes for the handling of material, are all a part of an enterprise operated to a degree of high efficiency to serve the buyer.

In the announcement of the 90th Anniversary, it is stated that thousands of different kinds of steel are shipped on an every day basis just as a grocery store handles its daily orders.

NINETY SUCCESSFUL YEARS



Drawing of
Original Iron
Store of
Joseph
Ryerson
Established
in 1842



Composite View
of Ten
Ryerson Plants
in 1932

JULY CONSTRUCTION INCREASED

CONTRACTS awarded for construction, building and engineering projects in the 16 Southern states during July had a total valuation of close to \$46,000,000, the highest monthly total this year, according to a compilation of reports published in the MANUFACTURERS RECORD DAILY CONSTRUCTION BULLETIN. For three consecutive months the value of construction awards in the South has shown a steady increase. The present upward trend started with a total of \$26,000,000 in April, climbed to \$35,108,000 in May, and increased to \$43,568,000 in June. The July total of \$46,000,000 is 76 per cent greater than the April figure, exceeds the May figure by over 30 per cent, and represents an increase of more than 5 per cent over the June total.

The aggregate value of awards, covering buildings, general construction and engineering work in the Southern states, in the first seven months of this year exceeds \$213,500,000. By including numerous small projects for which contracts have been let, but which were not reported separately, the total would, it is conservatively estimated, be brought to well over \$280,000,000.

Public construction and building work featured the year's activity to date. In July, the general contract for a New Department of Justice building in Washington, estimated to involve an expenditure of more than \$8,000,000, was awarded. Another award in Washington was for a \$600,000 structure to house the National Institute of Health.

Plans are being prepared for numerous important public buildings in all parts of the South. In addition to the sums being expended by the Federal Government, states and cities are expending millions of dollars for courthouses, libraries, municipal buildings and similar structures. Kansas City, Mo., contemplates a \$4,500,000 auditorium, and St. Louis a similar structure to cost \$4,000,000.

Last month awards for city, county, Federal and state building projects amounted to \$10,374,000, compared with June awards for similar projects, aggregating \$19,202,000. The June total included a \$10,000,000 structure to house the Department of Labor and the Interstate Commerce Commission, and an \$8,-

Awards in seven months total \$213,569,000, with high monthly record for 1932 set in July when the value of awards mounted to \$45,899,000—Value of contracts to be awarded in July aggregate \$71,530,000 —also a high monthly total for this year—gives evidence of big volume of construction and building for near future

000,000 building for the U. S. Post Office Department.

While road, paving and bridge construction has fallen off sharply in some parts of the country, this class of work continues in volume in the states from Maryland to Texas. The July awards of \$13,580,000, compare with awards in the preceding month of \$14,574,000 and with May awards of \$14,260,000. Considering the sharp decline in road construction costs, the volume of work represented at present price levels is impressive. In one Southern State \$800,000 have been expended for road building machinery this year. During the next few months road and bridge construction promises to increase sharply in the South, since practically all the states are determined to use the funds recently made available by Congress for emergency highway construction. Besides, several of the states are arranging for the sale of bonds to finance State highway programs. Counties, parishes and districts are voting and marketing bonds for road purposes.

Maintenance work claims particular attention in the majority of states, providing, as it does, for unemployment relief and for the utilization in many localities of locally produced materials. To the end that this work may be expedited, the various organizations directing maintenance efforts are purchasing modern equipment, including bladders,

scarifiers, patrol units, tractors, trucks of both special and standard design, etc.

Miscellaneous construction and engineering awards mounted to a new high total of \$18,122,000, last month, compared with the June total of \$5,219,000. This classification includes projects not designated by the other headings in the table herewith, and represents a diversity of activities in widely scattered areas. Noteworthy are provisions for the building of levees, revetments, contraction works and complicated dyke systems along the Mississippi River and its tributaries, individual lettings on several occasions having exceeded \$2,000,000.

In Washington, the contract was let for steam lines and tunnels, part of a giant central steam-heating system for government buildings, amounting to over \$1,200,000. In Baltimore a contract was let involving the expenditure over a 10-year period of \$4,292,000 for the erection of a garbage and rubbish incinerator, the hauling of rubbish over a 5-year period, and the incinerating of garbage and rubbish for 10 years. The incinerator equipment and building construction is estimated to involve \$500,000 investment.

A \$300,000 railroad project in West Virginia was let to contract. Plans were announced for a \$4,000,000 steam-electric generating plant to be erected in Washington. An 80-mile pipe line to serve a new Texas field is projected at a cost of about \$800,000. Road and bridge projects estimated to cost over \$2,000,000 have been let in the last few days in Texas.

Construction materials are showing a tendency to advance in price, cement rising in some Western states 30c, 50c a barrel. Such a trend will cause many projects, held in abeyance in the hope of securing the lowest price, to be carried forward.

Construction Activity for July, 1932

	Contracts Awarded	Contracts to be Awarded
Apartment houses and hotels	\$ 285,000	\$ 218,000
Association and fraternal		135,000
Bank and office buildings	500,000	430,000
Church buildings	25,000	422,000
City, county, government and state buildings	10,374,000	20,934,000
Dwellings, costing \$10,000 and over....	1,135,000	1,414,000
Roads, paving and bridges	13,580,000	23,631,000
School buildings	964,000	3,047,000
Sewers, drainage and waterworks	241,000	3,889,000
Store buildings	673,000	608,000
Miscellaneous	18,122,000	16,802,000
Total, July	\$45,899,000	\$71,530,000
June	43,568,000	67,886,000
May	35,108,000	45,800,000
April	26,024,000	50,457,000
March	27,079,000	61,910,000
February	17,604,000	60,234,000
January	18,287,000	39,020,000
Total for 7 months..	\$213,569,000	\$396,837,000

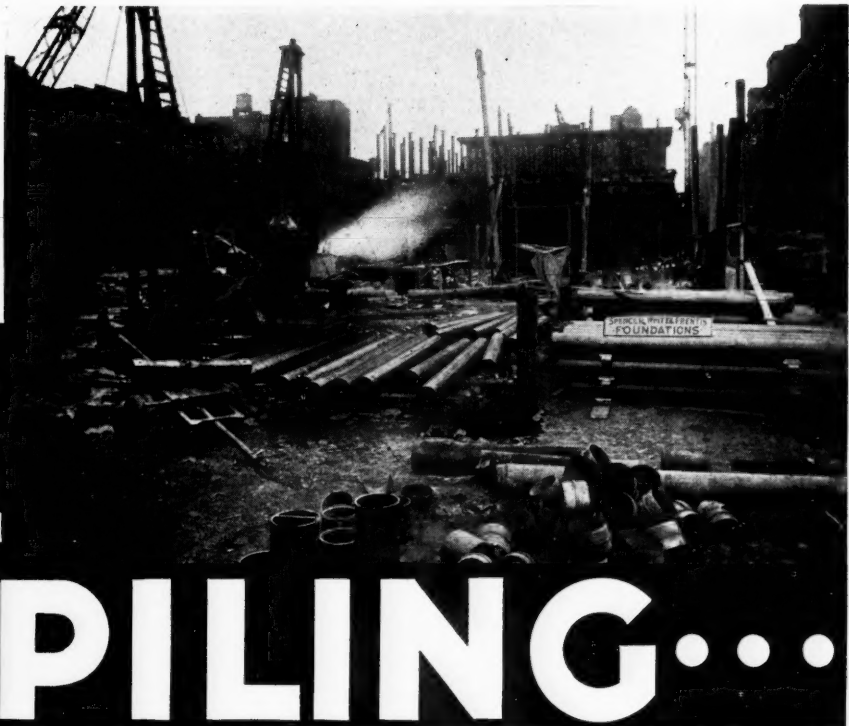
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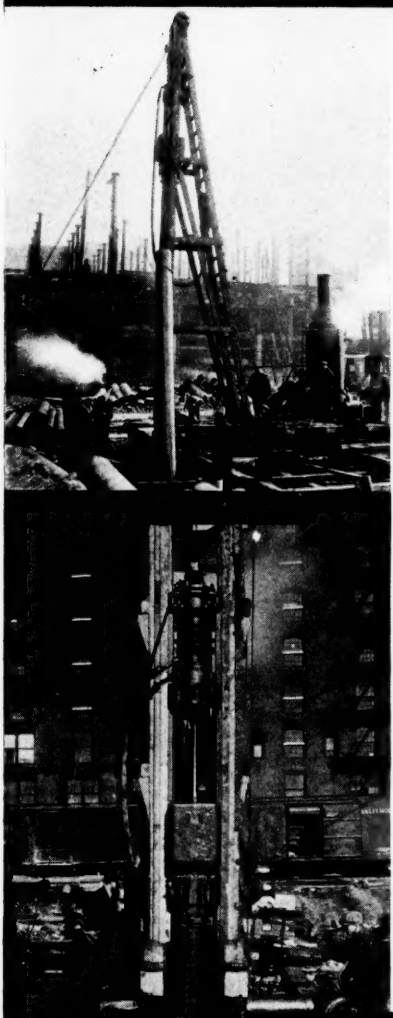
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FOR



PIPE *for* PILING...



Foundation construction can be greatly simplified by adopting the modern method of using steel pipe piling, particularly where considerable variation exists in rock depth below street levels. Over a million feet of large diameter steel pipe has been placed in the foundations of larger buildings in the City of New York alone. This approved and rapidly growing practice of driving pipe open-end to rock bottom and filling with concrete, requires less time to install, reduces amount of underpinning of adjoining structures and means a minimum loss of ground below excavation level. Pipe piling can be driven tangent to walls; there is less vibration in driving, and, in general, they are more economical than open piers.

For piling purposes, NATIONAL Pipe is preferred by engineers and contractors because of its reliability in strength, uniformity and general durability. Our engineers will gladly share their extended experience in the economical use of pipe piling for foundations. As in other important uses NATIONAL is—

America's Preferred Pipe For Piling

NATIONAL TUBE COMPANY, Pittsburgh, Pa.

Subsidiary of United  States Steel Corporation

NATIONAL PIPE

ITEMS OF INTEREST

■ Bookings and shipments of the fabricated structural steel industry have shown a gradual increase since January, with the exception of one month, that of April.

■ A report issued the latter part of July by R. G. Dun & Co. is interesting. It cites the fact that commodity prices reached a total of 33 advances, this being the largest that has appeared in the list in 35 weeks. "There has been a marked stability in prices, however, since the latter part of May, and it may be that the current upward movement is a forerunner of increased general economic activity."

■ The National Industrial Conference Board, in one of its recent Bulletins, refers to the old days when by the use of the scythe and the flail it required 60 hours of labor for one man to harvest and thresh an acre of wheat. Later, when the self-binder and the stationary threshing machine were invented, the time was cut to probably six man-hours, while today, with the "combine" used in the great wheat fields of the Northwest, the man labor per acre has been reduced to from half an hour to an hour and a half. The gain in efficiency per worker achieved by these mechanical aids, runs from 4000 to 12,000 per cent, with a consequent labor displacement of more than 97.5 per cent.

In discussing the economic aspects of these impressive advances in the cultivation of wheat, the Conference Board Bulletin says that the successful introduction of efficient machinery into agriculture may well point to the elimination of wheat farming where such machinery is not used.

■ An agreement has been concluded by an American company and the Chinese Ministry of Communications whereby in the near future China and the United States will be linked by direct radio-telephone service. Four radio-telephone transmitting and receiving stations for long distance service will be erected and one large power station at Shanghai, bringing the 100,000 telephones of China into connection with the rest of the world.

Despite the succession of internal troubles, it is reported by the Department of Commerce that industrial development in China has been progressing rapidly over the last six or seven years. In order to take full advantage of this tendency to progress, eight well-known British engineering firms have joined together in a company for the promotion of large engineering projects, presumably to utilize British Boxer Indemnity funds as credits.

It is expected before the end of the year seven more Latin-American countries bordering on the Caribbean Sea will be within the reach of telephones of this country. They are Panama, including the Canal Zone, Honduras, Nicaragua, Costa Rica, Colombia, Venezuela and the Bahama Islands.

■ The Employing Printers' Association of America estimates a saving of from \$6,500,000 to \$7,000,000 in expenditures for printing and binding by the Government Printing Office in 1933. This is one of the savings effected by the Economy Act recently passed by Congress.

Section 304 of the Act provides that during the year not more than \$16,000 shall be available for stationery for Senate members and committees and not more than \$44,000 for stationery for representatives, delegates, etc., while each senator, representative, delegate and resident commissioner is allowed \$90 for stationery. It is said the effect of the Act in respect to the printing office should be to eliminate almost entirely the annual waste of \$2,000,000 paid for non-productive time. Congress has granted employees of the Government Printing Office 63 days of leave and holidays annually, with full pay, making one-fifth of their time non-productive and constituting 13 per cent of the total annual charges for printing and binding. The difference between 63 days leave with pay and the 15 allowable annually after the current fiscal year, measures part of the economy achieved.

■ The Cotton Textile Institute calls attention to the fact that the Navy's newest dirigible, "Macon," has in its construction 92,000 square yards of cotton. This would make a single strip, one yard wide, more than 50 miles in length.

The silvery appearance of the covering is obtained by a treatment of the cotton fabric with four coats of acetate cellulose, two of them containing aluminum powder. The treatment tightens the fabric over the frame, gives it smoothness and waterproof qualities, and deflects the sun's rays.

Fifty-six thousand square yards of cotton are used for the gas cells. This fabric is rubberized and every thread, both for the envelope and gas cells, was spun and woven in this country.

The strength and durability of cotton, demonstrated by years of service in all types of airships, including the United States Navy dirigible "Akron" was further emphasized by the fact that the fabric for the "Macon's" outer covering weighs only three ounces per square yard, and for the gas cells, two ounces.

■ Feldspar is referred to as a "jack-of-all-trades" product. From scouring soap to the costliest articles of delicate beauty—from the bathtub to the most minute parts of the radio—it has its uses. Artificial teeth, high voltage electrical insulators, and even some semi-precious stones contain the versatile mineral feldspar. It may be said that it is indispensable in the manufacture of sanitary, electrical, chemical and medical articles, as well as a great number of glass products. It is used in poultry grit, in stucco and as a binder for abrasive wheels.

Glanular glasspar is a new product, brought to light through the research laboratories in 1930.

■ At a speed of 30 to 40 miles an hour, the drag of a boat 20 or 30 feet long is one-fifth of its weight. This drag must be overcome by motive power. With the speed increased to 100 miles an hour, the drag increases to half the weight of the boat. In an airplane the corresponding ratio is one-fifteenth.

Dr. Oskar G. Tietjens, engineer of the Westinghouse Electric and Manufacturing Co., recently completed tests on a craft intended to lift itself out of the water and skim along the surface on two small planes. He succeeded in practically doubling the speed of the boat with the same power. Dr. Tietjens predicts that a motor boat, capable of 25 miles an hour in water will be raised to 40 miles an hour with no more power when lifted into the air by submerged planes. The idea appears practical in this form for boats ranging in size from 12 to 50 feet long.

It requires several thousand horsepower to send a small racing boat 106 miles an hour—about 4000 horsepower for small craft like Miss England II. Development of high speed boats must be accomplished with greater economy of power. Dr. Tietjens has demonstrated the practicability of the model he constructed and plans to carry the idea further, building a full size boat and using an outboard motor, which he considers particularly suitable for this new type of high-speed water craft.

The high speed model constructed counter-balances the weight of the boat by the lift of steel hydrofoils attached to the hull.

The fixed hydrofoil was attached at about the normal water line just forward of amidships. It is perpendicular to the hull and its cross section is like that of an airplane's wings. For a 12-foot boat, the hydrofoil would need to be only eight inches wide. At the stern, just forward of the propeller, is the second hydrofoil. This is fastened to the streamlined housing of the propeller shaft and can be tilted up or down. This keeps the craft level and maintains stability by controlling vertical direction.

In the test made, the model demonstrated the proper design of the hydrofoil and its general stability. There was no tendency for the boat to over-turn while riding on the small plane surfaces.

■ The Home Loan Bank bill specifically withholds benefits from homes costing more than \$20,000. In his statement, President Hoover expects the project to immediately stimulate new building and referred to a Commerce Department survey which showed that there is a deficit in some localities sufficient to justify \$500,000,000 of new home construction. Building and loan associations and other renting bodies will be able to borrow from the Home Loan Bank on the mortgages they are now carrying.

MORE EVIDENCE that power-factor improvement pays big dividends

Gross Annual Saving in Cost of Power.....\$9564
Chargeable to New Equipment

Energy Consumed by Condenser.....\$1572

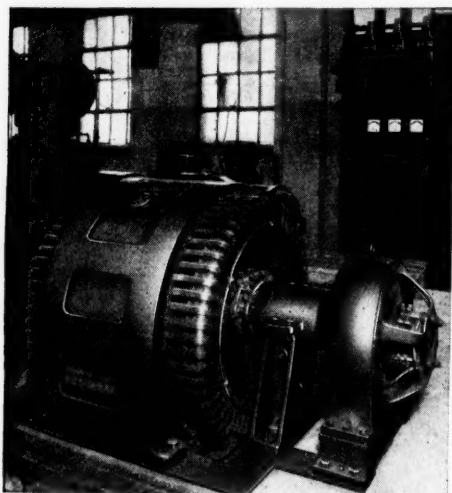
Maintenance, Interest, and De-

preciation.....\$1910 \$3482

Net Saving in Power Cost.....\$6082

Total Cost of Condenser Installation.....\$9552

And so, this industrial plant—the Stockham Pipe & Fittings Company, of Birmingham, Ala.—will realize the return of its investment in about $1\frac{1}{2}$ years. The investment covers a General Electric 1250-kv-a. **SYNCHRONOUS CONDENSER**, which has raised the power-factor from 0.66 to 0.83.



1250-kv-a. G-E synchronous condenser installation at Stockham Pipe & Fittings Company, Birmingham, Ala.

General Electric power-factor corrective equipment—capacitors, synchronous condensers, synchronous motors—will effect economy and improve plant operation. Our engineers can assist you by making studies necessary for the most practical solution of your power-factor problem and in the selection of the equipment. To obtain their services, or an interesting publication on this subject, address our nearest sales office or General Electric Company, Schenectady, N. Y.

||| G-E synchronous condensers are quiet, smooth, and efficient in operation. They are particularly applicable to voltage regulation, as well as to power-factor improvement. The standard line includes sizes from 100 kv-a. to 50,000 kv-a. They can be manually or automatically controlled. |||

108-12

GENERAL ELECTRIC

IRON, STEEL AND METAL MARKET

Upturn in Steel Expected

Pittsburgh, August 1.—The month of July has witnessed a complete turn in steel trade sentiment, which has become hopeful if not indeed quite sanguine as to the future. A very decided upturn in steel tonnage is fully expected for September, with perhaps a slight increase in August.

Steel production in July was only a trifle under June, when usually there has been a marked decrease, but June had shown a large drop from May. July production was at 15 to 16 per cent of capacity, against 15.96 per cent officially reported for June, with an average of 22.43 per cent for the half year, which in tons produced ran 26 per cent of the tonnage in the first half of 1929, the record half year.

Steel is due for a particularly marked rise some time, because it has gotten to such a low stage of activity. It has followed the same course as in the past, fluctuating more widely than general business activity, whereby long ago Andrew Carnegie said iron was either prince or pauper. The Federal Reserve Board's index number of general industrial activity was reported at 59 for June of this year, base or 100 being the 1923-5 average. Computing a steel production index on the same principle, last June was 26 or less than one-half the general index. Conversely, the general index in 1929 had been 119 while the steel index was 132, showing 13 points excess.

Steel activity is expected to increase more rapidly than general activity, in accordance with all past experience, and in accordance with recent theories also, that steel demand of late has not covered depreciation or wear and tear, that facilities have been allowed to run down, arrearages accumulating.

Improvement is expected more in innumerable miscellaneous lines than in the big lines involving railroads, automobiles and construction work. The railroads may be able to spend some money soon through help by the Reconstruction Finance Corporation. Construction work may increase slightly, for fabricated structural steel bookings as reported by the Department of Commerce were 90,800 tons in May and 86,800 tons in June against an average of 60,000 tons in the first four months of the year, and July lettings have been fair though not up to May or June.

Some finished steel products have been perfectly firm in price for a long time, while in others there were some concessions through July delivery.

Improvement in Production

Birmingham, August 1.—With expectations that Federal financing will make possible the carrying out of various projects throughout the country which will require cast iron pipe, steel in varied shapes, cement and other products of the industrial district, a more optimistic feeling is noted on all sides here.

Small lot orders are being received by a number of the industries of the Birmingham district and there has been slight improvement in production. The opinion is that the bottom has been reached and that the turn for the better is setting in.

Pig iron production is at low ebb, but steelmaking operations of the district have recently been maintained on a 21 per cent capacity basis which is higher than Pittsburgh district.

Portland cement production is around 40 per cent capacity, five out of the six mills being in operation. Coal production is 50 per cent and more under normal and coke production a little better than 33½ per cent.

The new month holds out promise of steadily improving conditions in the industrial lines in the South.

Alabama industrial leaders are evincing great interest in the plan of constructing a canal across the State of Florida, the Gulf-Atlantic Ship Canal, the Reconstruction Finance Corporation to be asked to loan \$175,000,000 for the construction thereof. Theodore Swann, executive of Swann Corporation, chemical manufacturers, is leading the campaign in the interest of Alabama industrialists cooperating in this project.

The Alabama Industrial Board, of which Mr. Swann is chairman, is sponsoring a survey of the State as to industrial projects which would be self-liquidating and for which application of financial assistance could be asked of the Reconstruction Finance Corporation.

The City Commission of Birmingham will ask the Reconstruction Finance Corporation to finance a project of bringing cheap industrial water into the Birmingham district from the Tennessee river or from the Warrior river.

Metal Prices Firmer

New York, August 1.—Price advances in lead featured the non-ferrous metal markets, this being the first rise of the year for this metal after it had recently dipped to new all-time low levels. The New York price became 2.95c per pound, and the East St. Louis quotation was 2.85c, a rise of \$6 per ton in two days. Tin was strong at the middle of the week when stock and commodity markets improved materially.

Though zinc has not improved in price it has held steady for a half month in the face of extreme dullness, the quotation being 2.50c per pound, East St. Louis. Copper has made some new lows in the foreign market. Japanese producers having offered the metal at the equivalent of 4.45c per pound. However the domestic price of the red metal has been unchanged all week at 5¼c, delivered to the Connecticut Valley. The official price of Copper Exporters, Inc., is the same at 4.70c per pound, c. i. f. European ports.

A better feeling appears to pervade industry generally. The steel industry continues to work at 16 per cent of capacity but there are prospects of higher operations before long. Steel scrap prices have risen after a long series of declines to all time low levels—and scrap is regarded as a barometer for steel prices generally.

Cheerful sentiment among the metals gained in momentum as the week progressed. On Thursday all metals dealt in on the London Metal Exchange made the sharpest advances in months. Lead had declined this month \$7 per ton from the stabilized level prevailing from the end of March to the end of June, yet during two days of the past week the market had recovered \$6 of that loss. Heavy buying of lead both preceded and accompanied the price advances.

Copper statistics for June show total world stocks of 701,000 tons at the end of the month, an increase by 6000 tons, half of which gain was in the United States and half outside. However, world production declined 2500 tons during the month, the total having been 69,000 tons.

World figures for lead in June were favorable in that world production totaled 104,728 tons as against 115,027 tons the preceding month.

Lead and zinc ore prices are unchanged. The former sells at \$20 to \$25 per ton, depending on quantity, while zinc is \$14 to \$15 per ton.

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BAR PRODUCTS
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FENCE
NAILS
WIRE PRODUCTS



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WHATEVER your steel requirements, from a 5-ton ingot to a 2d nail—GULFSTEEL makes them all—with every manufacturing process at one big

plant where changes can be quickly made to suit your special requirements. This means that GULFSTEEL products are not only metallurgically correct but possess the *personality* that fits them for the purpose intended. In buying GULFSTEEL products you get the right steel for the job.

GULF STATES STEEL COMPANY
BIRMINGHAM, ALABAMA

GULFSTEEL

AUGUST NINETEEN THIRTY-TWO

GOOD ROADS AND MOTOR TRANSPORT

Enlarged Road-Building Program To Get Under Way

Passage of the Emergency Relief and Construction Act by Congress and its signature by President Hoover insures some measure of early unemployment relief through road construction, declares T. H. Cutler, president of the American Road Builders' Association.

"While the \$136,000,000 appropriation for highways is only a small part of the \$2,122,000,000 relief measure, it is probable that road building will be the first work undertaken," says Mr. Cutler.

"Only a beginning in meeting unemployment conditions can be made with the funds available," declares Mr. Cutler, "but such relief will be widely distributed throughout the country. The provision permitting cities to use the relief funds for street work, and the fact that the relief funds do not have to be matched with local money assures considerable municipal highway work. Restrictions as to the amount of Federal participation per mile also have been removed.

"Employment benefits will not be confined to the workers on the roads directly but will extend to those working in factories, plants and mines producing road equipment and materials and also on transportation lines conveying them to the construction sites.

"Because no part of the emergency highway funds must be matched by an equal amount from the states, regular state funds are released for new projects. The emergency Federal-aid money will be used in lieu of state money to match regular federal aid in a number of states. Additional new work will be created through the releasing of Federal-aid allotments in states that lack the necessary state funds to cover regular Federal-aid promptly," Mr. Cutler concludes.

\$3,600,000 Oklahoma Road Awards

In the first six months of the year contracts awarded by the Oklahoma State Highway Department, Oklahoma City, included 63 miles of paving, 381 miles of grading and drainage and 161 bridges at a cost of \$3,629,511, L. C. Bernard, assistant state highway engineer, announces.

The average cost of a mile for paving, including shoulders and guard rails, was \$18,191.81, while the average cost for grading and drainage was \$3,490.54.

1,000,000 Roads Letting

Raleigh, N. C.—Details have been arranged by the North Carolina Highway Commission for opening bids August 10 on road and bridge construction to cost more than \$1,000,000. Work proposed under the contemplated contracts would include 175 miles of highway and one large bridge. Fifteen projects are involved, including: 13.3 miles of sand asphalt; 48.1 miles of surface treatment; 44.5 miles of oil treatment; 44.7 miles of grading; 11.7 miles of top soil; 12.9 miles of bridge structures and grading; bridge structures and approaches in Carteret County, and a bridge across the Yadkin River at Stokes Ferry in Davidson County. Following the award of these contracts, the Commission will award contracts regularly until more than \$5,000,000 of regular and emergency Federal aid allotted to North Carolina will have been expended, according to Chairman E. B. Jeffress.

Washington Terminal For Bus Lines

Washington, D. C.—Plans for the erection of a union terminal for a number of bus lines operating through Washington have been announced by M. P. St. Clair, president of United Motor Terminals, Inc., a Delaware corporation promoting the project. Property near the northwest corner of Pennsylvania avenue and Sixth street, northwest, has been leased for the building, it is said. Plans have been prepared by Milburn, Heister & Co., for a one-story and basement structure to contain 19,000 square feet of floor space. The Consolidated Engineering Company, Inc., Baltimore, has the general contract.

There will be four bus lanes with loading and unloading platforms to take care of 100 buses daily. The terminal will accommodate 20,000 passengers daily. Passengers will enter and leave the terminal by the Pennsylvania avenue entrance, from which a ramp will descend to a waiting room in the basement. A gasoline service station will be installed at C and Sixth streets. The building may be expanded to accommodate a hotel and garage on three additional floors.

Toll Bridge Purchase Planned In Missouri

State Highway Commission to Take Over
River Spans

Jefferson City—The State Highway Commission has been authorized by the State Board of Fund Commissioners to use \$1,050,000 of unsold Missouri road bonds for the purchase of toll bridges at Independence, Hermann and Jefferson City. The purchase price of the Independence bridge would be \$400,000; that at Jefferson City, \$150,000, and the bridge at Hermann, \$500,000. A friendly suit will soon be instituted in the Missouri Supreme Court to determine the question as to whether Missouri road bonds may be legally used by the State Highway Commission to buy existing structures over the Missouri River.

Cement Prices Advance

Increase in West Makes Eastern Producers
Hopeful Market Strength Will Spread

The price of cement has been increased by the Missouri Portland Cement Company, St. Louis, Mo., 30 cents a barrel, bringing it to \$1.15 a barrel. Several producers in Illinois have made similar increases, and in Kansas City it is currently quoted at \$1.25 a barrel, an increase of 50 cents over last month's prices. This advance of 30 to 50 cents a barrel in the Middle West is the first price increase of consequence since 1929, and it is said that Eastern producers are hopeful that these increases will soon react favorably on prices in Eastern territory. Observers declare a more hopeful feeling is beginning to manifest itself in the industry generally, as a result of a more stable price structure caused by a stricter adherence to the list price by a majority of the producers. In order to keep the mills running at the highest possible capacity, many producers are said to have practically disregarded prices in the past.

Toward the close of 1930, as the culmination of two years of declining demand and keen competition, a severe price war broke out and five cuts were made in the first five months of 1931. Current prices which have been in effect since May, 1931, are said to be the lowest in 15 years.



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For each size of "Caterpillar" Tractor, there's a correct size of "Caterpillar" Grader — built to match each other in strength and stamina. Designed to utilize most effectively the ample power developed by the rugged engine and the gripping traction of broad tracks. Offered teamed together to triumphantly fulfil the "Caterpillar" pledge: The Most Miles of Road for the Fewest Taxpayers' Dollars.

Your "Caterpillar" dealer will gladly give you complete information on "Caterpillar" Tractors, Graders (Blade and Elevating) and the "Caterpillar" Auto Patrol.

Caterpillar Tractor Co., Peoria, Ill., U.S.A.

Track-type Tractors Road Machinery
Combines

(There's a "Caterpillar" Dealer Near You)

Prices — f. o. b. Peoria, Illinois

FIFTEEN . . .	\$1100	THIRTY-FIVE .	\$2400
TWENTY . . .	\$1450	FIFTY	\$3675
TWENTY-FIVE .	\$1900	SIXTY-FIVE . .	\$4350
DIESEL	\$6500		

AUGUST NINETEEN THIRTY-TWO

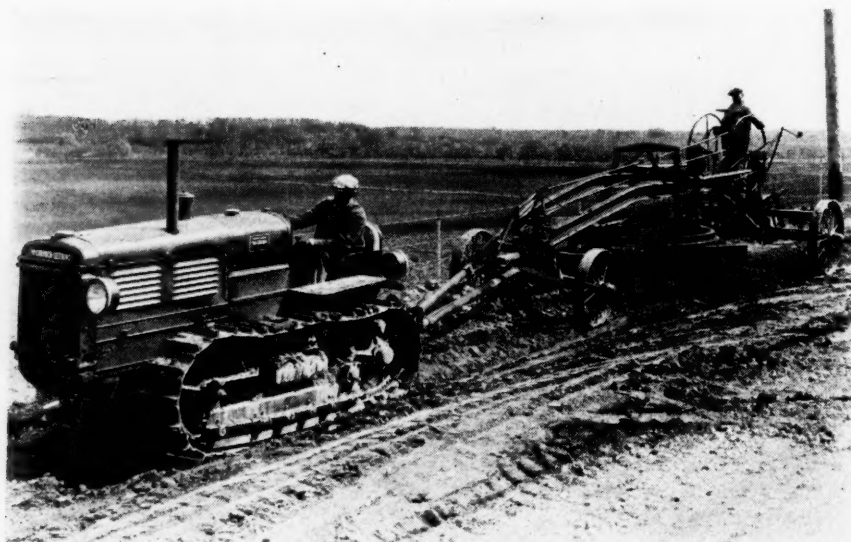
EQUIPMENT

NEW AND IMPROVED

Bigger International TracTracTor

The International Harvester Company of America, Inc., Chicago, manufacturer of McCormick-Deering farm operating equipment and International motor trucks, announces another addition to its crawler tractor line in the new Model T-40 six-cylinder TracTracTor recently placed on the market. This new unit develops a maximum drawbar horsepower of 40 and a maximum engine horsepower of 52 as compared to the maximum drawbar power of 23 and a maximum engine power of 31 for the T-20. It is particularly well adapted to heavy construction work of various kinds where the maximum of push and pull power is required, such as road, dam, levee, irrigation and oil field work, logging, etc., and also for certain types of heavy farming where the going is soft or rough. Accessibility of working parts is a feature of the machine, making for easy inspection and adjustment. Special dust seals guard shafts and bearings. Large, positive-acting plate steering clutches, a new crawler feature, are located in the rear of the main frame, and the steering brakes immediately in the rear of the clutches. Operating efficiency is enhanced by the use of 44 ball bearings. The overall length of the T-40 is 141 inches; overall width, 61¾ inches; height over air cleaner top, 73½ inches; track shoe width, 16 inches, and length of ground contact, 70½ inches. Fuel tank capacity is 45 gallons and the weight of the machine is 10,600 pounds. The tractor operates at five forward

**TracTracTor on Heavy
Duty Grading Work**



speeds, from 1¾ miles to 4 miles an hour, and at 2¼ miles reverse.

Improved Enameling Iron

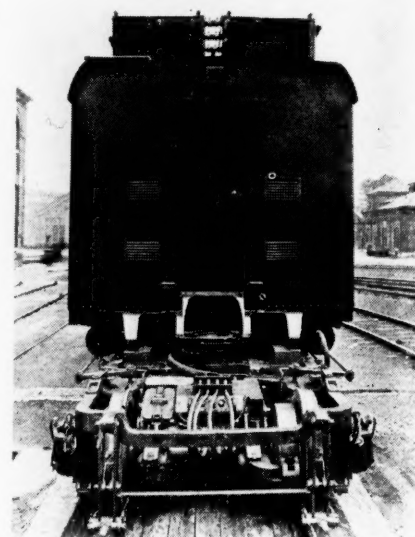
The American Rolling Mill Company, Middletown, Ohio, announces the production of an improved enameling iron to be known as "Crystal Etched," possessing exceptional bonding qualities. This new sheet, an Armco development, is produced by an exclusive process, which will mean large savings, it is declared, to the porcelain enameling industry. Adhesion between the enamel and metal will be uniformly strengthened, thus decreasing cull and rejection losses and offering greater resistance to chipping and flaking. The new special bonding sheet will be of the same uniform analysis as Armco's regular grade of enameling iron.

Two-Ply Stainless Steel

The development of a commercially successful two-ply stainless steel has been announced by the Ingersoll Steel & Disc Company, Chicago, a division of the Borg-Warner Corporation. This new metal, to be known as Ingoclad Stainless Steel, is produced by a patented process from the composite ingot and may be deep drawn, stamped, welded, formed and polished. It is now being produced in various gages and sizes of sheets, while facilities will soon be available to supply all practical commercial sizes, it is said. Production is being handled at the company's plant at New Castle, Ind.

900-Horsepower Gas-Electric Motor Car

To develop the further possibilities of power rail cars for improved passenger-train service, the Atchison, Topeka & Santa Fe Railway System recently placed in service the largest and most powerful rail car of the gas-electric type yet built. Of practically all-steel construction, this car is 90 feet long, weighs 245,000 pounds and develops a maximum of 900 horsepower, sufficient to haul four



Capable of Speeds Up to 80 Miles Per Hour

heavy passenger cars as trailers. It is designed to meet a wide range of operating conditions, from low speed, heavy duty operation such as branch-line or mixed train service, to speeds up to 80 miles per hour, where loads are light and track conditions permit. Either gasoline or distillate may be used as fuel, being supplied from a 780-gallon tank under the car. Design of the car is unique in that the front 30-foot section housing the power unit, and the 60-foot section used as a baggage and express compartment, are separate structures united by a center truck and an articulated type of construction.

Car bodies and trucks were built by the Pullman Car & Manufacturing Corporation, Chicago, and the power unit by the Electro-Motive Company, Cleveland, Ohio, using a 12 cylinder V-type Winton motor.

General Electric direct-current generator, transmission and control apparatus, traction motors and Westinghouse brake equipment are used.

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A REGISTERED TRADE NAME

The Line With More Sales Opportunities

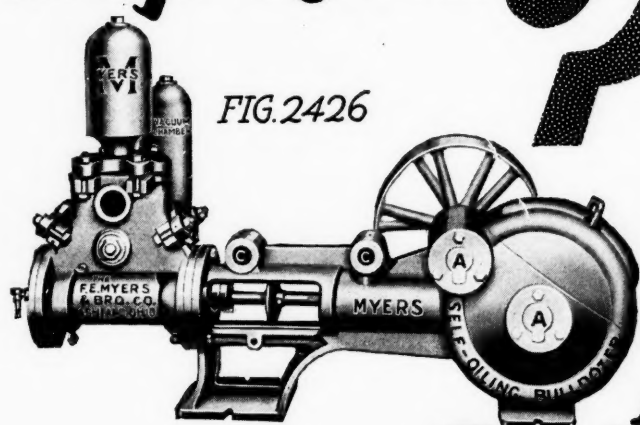


FIG. 2426

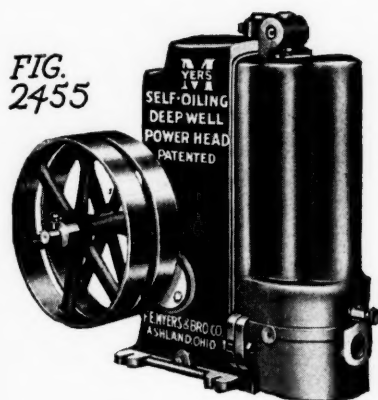


FIG. 2455

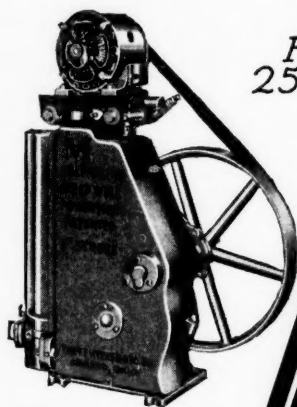


FIG. 2527

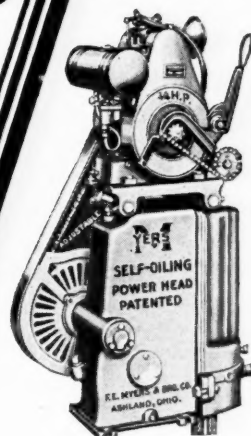


FIG. 2551

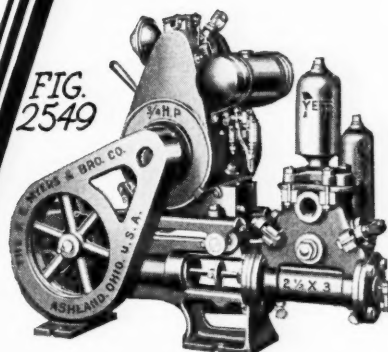


FIG. 2549

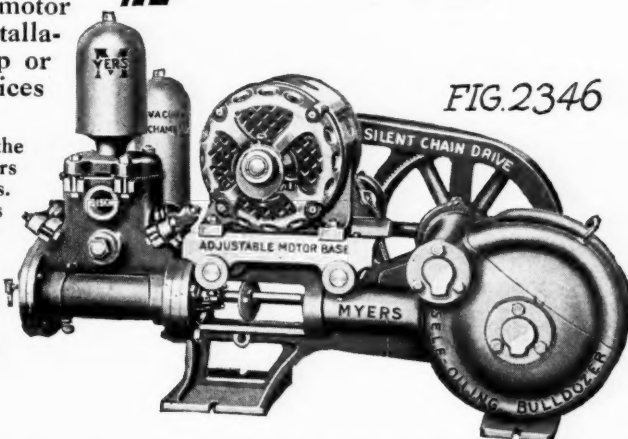


FIG. 2346

Water consumption throughout the year reaches its highest peak during the summer months. In the home, on the farm, factory, or elsewhere, this is true.

In all parts of the country, during this period and through the fall season, the market for pumps and water systems is most active.

Weather conditions are ideal for installations. Old pumping equipment is replaced with new. Wells are drilled, dug or deepened. Everywhere, homes and farms are modernized with running water. Factories, creameries, dairies, summer cottages, camps, tourist homes, service stations, provide a "plus" sales field for water systems.

You have plenty of opportunities to make money with Myers Pumps and Water Systems during the entire year but from now on until the snow flies, opportunities are multiplied many fold.

Every requirement of your trade can be satisfactorily met from the Myers line. Large or small volume, engine or motor power, protected or open installations, there is a Myers Pump or Water System at new low prices for the purpose.

Right now is the time to investigate the Myers Line and the possibilities it offers in your locality for profitable business. Ask to have one of our representatives call, or write or wire us for catalog and information.

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ASHLAND, OHIO.
ASHLAND PUMP AND HAY TOOL WORKS



PUMPS FOR EVERY PURPOSE - WATER SYSTEMS - HAY TOOLS - DOOR HANGERS

AUGUST NINETEEN THIRTY-TWO

LETTERS FROM OUR READERS

Lessons of the Past a Guide to Future

E. F. CRAVEN COMPANY
State Distributors
Road Building Machinery
GREENSBORO, N. C.

Editor Manufacturers Record:

The question you ask on the front cover of the MANUFACTURERS RECORD of June 30, is more than man is able to answer, and yet it is most worthwhile, for it is a question that should interest everyone.

While none of us can tell what the future holds in a spiritual or business way, we do have the past history from which to draw information on what has taken place. If history does repeat itself, and it seems that the statement has been proven, then the best way to determine what can be made our future is to apply ourselves diligently and faithfully to the doing of those things that have brought results in the past. We recognize that there will be a great response to this thought in the expression that times have changed. The fact remains, however, that human likes and dislikes seem never to have changed; the changes being in the tools that we use, for in the days following the discovery of America men and animals furnished transportation, but transportation has changed until the tools used today are mechanical power machines of different types.

You refer to our government and the press. Does the history of the past give us any reason to believe that we can turn to the government and the press and be relieved of the present depressed conditions? Or does the past reveal to us that it is necessary for us to build up in the individual a willingness to accept the real teachings as given to the world in the prayer that Christ outlined to the disciples, which among many things includes setting aside our individual wants and desires? Human will has always turned to selfishness and a desire for having the things that we personally want or that the group with which we associate ourselves as a part desires. The first word Christ used is inclusive, for He did not teach the disciples to think in terms of self, but of being a unit of one large family.

The future, from my viewpoint, is going to depend largely on how close a working together we can get in the spirit of consideration of one for another in the place of a willingness on the part of many to sacrifice everything on the altar of hatred.

E. F. CRAVEN.

Reduce Government Expense

WASHINGTON, D. C.

Editor Manufacturers Record:

Your editorial regarding the expense of government is timely and inspiring. As administration and laws are now constituted, it is submitted that both the Civil Service and Federal Trade Commissions can be easily dispensed with at great saving in expense to the people.

The functions of the former can be handled by the personnel sections of the various departments, with no more trouble or expense than they now have in contacting the commission from time to time with attendant red tape; and the Civil Service employees will have the same statutory protective safeguards. Examinations of new applicants are not now being held, there being a long list of eligibles and no vacancies to be filled except in emergency. The field of the latter overlaps that of the Department of Justice and the fraud section of the Post Office Department. One Assistant Attorney General could take the place of the entire Federal Trade Commission with better results, and investigations can be made by the well-trained staffs of the Justice and Post Office establishments.

As to veterans, regional offices might well be abolished with great saving, and hospitals turned over to the Army and Navy, eliminating intermediate expense. The insurance feature could be turned over to private insurance companies which have agents and doctors in every part of the nation.

BRYANT LEWIS.

A Suggestion to Employers

E. LEO BALL
Architect
Structural Engineers
ALEXANDRIA, I.A.

Editor Manufacturers Record:

Your paper has done many good things for the South, as well as for the entire country. I believe it can do more, so here goes. I read your last issue very carefully, particularly Senator Bailey's article, and I ask the question "Who pays for the appropriations made by the Government?" Assuming that they are paid for, where is the return? What does the taxpayer get in return? Nothing.

The press of the country, solidified and unified, can do more for the United States than any other medium of which I can think.

While some of us are asking for more taxes, as long as we do not have to pay them, and for appropriations, why not let every employer tax himself voluntarily. By this, I mean pay each and every employe in his hire one dollar per day more than is paid at present. A dollar may be too much. Cut it in half. I am going to use the dollar for illustration. Assuming there are 25,000,000 employed persons in the country, this would mean that many dollars per day put into use, with every employer getting work done for his money. At the end of every 40 days there would be \$1,000,000,000 back in circulation with something to show for it. Or if only 50 cents a day more were paid, 80 days would be required to put the same money back in circulation.

Would this mean anything? Would it not mean more than another \$1,500,000,000 appropriated for the Reconstruction Finance Corporation? Appropriated out of what? Taxes, which might not be col-

lected. Taxes on tobacco, cosmetics, etc., making the nation as a whole a bunch of tax dodgers and law violators. I believe by now you get the idea. Of course, one little employer cannot help. Every employer must work toward the same end. The press is the medium.

E. LEO BALL.

Boll Weevil Elimination Plan

NORFOLK FLAG COMPANY
NORFOLK, VA.

Editor Manufacturers Record:

Your front cover editorial "Less Cotton—Higher Prices in Prospect" prompts me to call attention to the plan for eliminating the boll weevil menace to the South's cotton crop which I proposed to President Hoover in 1931. I suggested the enactment of a National law similar in purpose to the Federal law passed to exterminate the fruit fly in Florida several years ago based on the fact that the boll weevil is a menace to the whole country because in destroying one-third of the cotton crop it has greatly increased the cost of production.

In its essence, the plan is to divide the cotton growing South into two sections and prohibit the growing of cotton in more than one section at a time. All states east of the Mississippi River would be known as the Eastern Belt and all states west of the Mississippi, the Western Belt. Prohibit cotton growing say in the Western Belt next season. Tax all cotton now in the United States and all cotton to be grown in the Eastern Belt for one year at say 4 cents a pound. Use this revenue to reimburse the farmers for not growing cotton in the Western Belt, then the following year stop cotton growing in the Eastern Belt and tax the western grown cotton. No objection could be raised to the tax on cotton because the very adoption of the plan would cause cotton to advance in price more than enough to cover the tax. The Government has the right to tax cotton the same as tobacco, whiskey, etc.

A strip of land 50 miles wide on each side of the Mississippi River would have to be permanently restricted from growing cotton so as to keep the weevil from jumping to the restricted areas. The plan might be continued so long as the weevil menace prevailed.

It would be an easy matter to collect the tax as every cotton gin has to report to the Federal Government every bale of cotton ginned. A precedent was established when cotton was prohibited in sections infested with the pink boll worm several years ago in Texas and Louisiana.

The fundamental fact upon which the entire plan will be based is that the young of the boll weevil can live only on the juices of the cotton plant, and if no cotton is raised over a large area for a season, the weevil will be exterminated.

The farmers' profits will be improved in the long run by lowering his cost of production so he can compete for the export cotton business successfully.

HENRY HERBENER.

Electric Bond and Share Company

Two Rector Street
New York

BALTIMORE'S
success in inducing
large national indus-
tries to establish
manufacturing
plants and branch
factories here indicates its outstanding advan-
tages as a shipping and industrial center.

These advantages are outlined in a booklet,
"Locate in Baltimore." We shall be glad to
mail you a copy.

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Bars and Bands	Wire and Wire Rods	Alloy Steels
Steel Pipe	Corrosion-resisting Steels	Tool Steels
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INDUSTRIAL NEWS

Starts Furniture Department

The Pittsylvania Lumber & Manufacturing Company, Inc., Lee Paul, president, Catham, Va., is starting a furniture department for the production of novelties and outdoor furniture and fixtures for lawns and gardens.

Gregg Joins Tennessee Coal, Iron & Railroad Company

Robert Gregg, recently resigned as president of the Atlantic Steel Company, Atlanta, Ga., has become vice-president in charge of sales of the Tennessee Coal, Iron & Railroad Company, Birmingham, Ala., succeeding Willard Wilson, who has retired. C. F. Stone, who has served for sometime as vice-president of the Atlantic Steel Company becomes president of the organization.

Furniture Plant for Sale

A citizens' committee at Farmville, Va., headed by R. B. Johns and J. Taylor Thompson, through an advertisement in this issue, offers for sale a furniture plant comprising a group of brick structures, completely equipped with electrically driven machinery. It is said to be modern in every respect. It has specialized in the production of kitchen cabinets, breakfast room tables and chairs. Excellent rail facilities are afforded, and lumber and skilled labor are available in the immediate vicinity.

Motorizing With "Caterpillars"

A train load of new model "Caterpillar" Tractors has been shipped from the plant of the Caterpillar Tractor Co., Peoria, Ill., for Government service. According to Captain O. P. Winningstead, formerly War Department Army Ordnance representative at the Caterpillar Tractor Co., the Army has standardized the "Caterpillar" Thirty-Five for Medium Field Artillery, the Twenty-Five for Light Field Artillery, and the "Caterpillar" Sixty-Five for Heavy Field Artillery.

Novo Engine Company Changes

The Novo Engine Company, Lansing, Mich., announces the resignation of Clarence E. Bement as vice-president and general manager, to become chairman of the board. He will be succeeded by Eric P. Teel, formerly general superintendent of the company. Mr. Bement is a pioneer in the manufacturing field and fostered the idea of building specialty equipment for unusual jobs. Mr. Teel has been connected with the company for 24 years and has been active along the line of design and development of new equipment.

York Safe and Lock Orders

The First National Bank & Trust Company of New Haven, Conn., recently placed an order with the York Safe and Lock Company of York, Pa., for new vault equipment, including a 15-inch rectangular vault door, safe deposit boxes, etc. The York Safe and Lock Company will also furnish a 10-inch vault door to the Dry Dock Savings Inst., New York City. These are in addition to recent orders reported from the Springfield Safe Deposit and Trust Company, Springfield, Mass., and the South Carolina National Bank, Charleston, S. C. Three other Southern banks will shortly have York equipment installed.

field, Mass., and the South Carolina National Bank, Charleston, S. C. Three other Southern banks will shortly have York equipment installed.

Trade Literature

Small Tools.—A new Small Tool Catalog No. 32 has been issued by the Greenfield Tap and Die Corporation, Greenfield, Mass., manufacturers of gages, screw cutting tools, reamers, twist drills, pipe tools, machine tools, etc.

Taylor Forgings.—The Taylor Forge & Pipe Works, Chicago, have issued a new catalog entitled "Taylor Forge," devoted to Taylor Forge fittings and their application, with the use of simple circumferential welds.

American Bank Reporter.—The American Bank Reporter and Attorney List, 1932 Edition (volume 143) has been issued by the Central Hanover Bank and Trust Company, New York City. The publication is from the press of the Steurer Publishing Company, New York.

Water Tanks and Standpipes.—The McClintic-Marshall Corporation, Bethlehem, Pa., subsidiary of Bethlehem Steel Corporation, has issued Folder No. 275 on McClintic-Marshall Elevated Water Tanks and Standpipes. Specifications of standard elevated tanks are given along with several interesting illustrations.

"Popular Government."—The Institute of Government, University of North Carolina, Chapel Hill, N. C., has issued, under the editorship of Albert Coates, a 52-page booklet entitled "Popular Government," outlining the governmental program now under way in North Carolina "with the active cooperation and support of all groups of public officers and private citizens."

Industrial Rubber Goods.—An interesting catalogue and guide to the section of belting, hose and other products has been issued by the B. F. Goodrich Rubber Co., Akron, Ohio, manufacturer of mechanical rubber goods. The publication presents a large number of illustrations, with descriptive data, tables and specifications for industrial, rubber goods.

Manufactured Products.—"Products of Manufacturing Industries, 1929," is the title of a pamphlet issued by the Department of Commerce, Bureau of the Census. Its presentation of census of manufactures statistics is particularly adapted to the needs of sales promotion and marketing department of commercial establishments. Copies of the publication may be purchased from the Superintendent of Documents, Government Printing Office, Washington, for 15 cents each.

Air Cooling Equipment.—The Niagara Blower Company, New York City, has issued bulletins Nos. 33 and 34, presenting engineering data, descriptive articles and illustrations of applications of Niagara Air Cooling Equipment. Brine Spray Coolers of aluminum to resist corrosion, and overhead mounting of large capacity dry coolers, are new features.

Pillow Block.—The Dodge Manufacturing Corporation, Mishawaka, Ind., have issued Bulletin A-117 devoted to the Dodge Type DH-1, Ball Bearing Self-Aligning Pillow Block, whose outstanding feature, it is declared, is its formed steel housing which contributes to fine appearance and finish, light weight, strength, rigidity and convenience of installation.

Track-Type Tractor.—The tractor division of the Allis-Chalmers Manufacturing Company, Milwaukee, Wis., has issued a catalogue on Allis-Chalmers Model "L" Tractor, described as an "outstanding development in Track-Type tractor construction," and declared to meet exacting demands of present day contracting, road building, logging and other service.

Transparent Wrappings.—In view of the close attention now being given to the subject of packaging, the Policyholders Service Bureau of the Metropolitan Life Insurance Company, New York, under the title of "Transparent Wrappings As A Sales Aid For Food Products", has issued a report on the experiences of 29 companies in the food field, with a list of references.

Eternit Gothic Shingle.—The Ruberoid Co., New York City, has developed an asbestos cement shingle of architectural charm, rugged texture and fireproof, which it markets under the name of the New Eternit Gothic. Folders describing the shingle and illustrating color combinations may be obtained from the company, which has a factory at St. Louis and Southern sales agencies in Baltimore and Mobile, Ala. The Continental Roofing Mills, Baltimore, are a division of Ruberoid Co.

To Display Newest Developments of Chemical Industry

The Fourteenth Exposition of Chemical Industries, the next Chemical Show, will be held in New York during the week of February 27 to March 4, 1933. Three floors of the Grand Central Palace will be devoted to the exhibits showing the newest developments in raw materials, machinery, and manufactured products. More than 179 companies have reserved space. The exhibitors represent over 40 American industries which are classified as chemical.

Exhibits of new products developed by research will corroborate the findings of a survey conducted recently by the Division of Engineering and Industrial Research of the National Research Council. This survey was made to ascertain the present status of activities of leading industrial research laboratories. Returns from 350 companies show that one-half had invested more in research in 1931 than in 1929.

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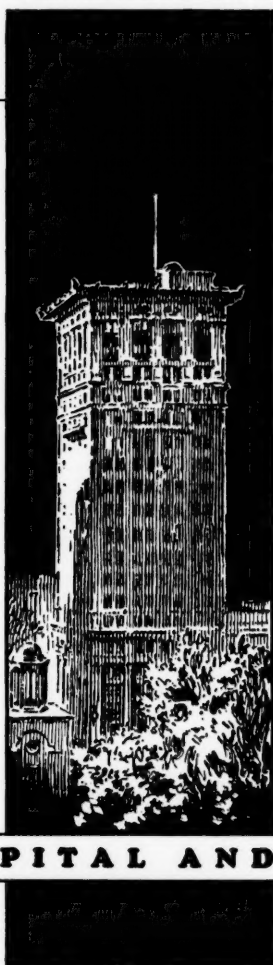
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FINANCIAL NEWS

Reserve Bank Credit

The volume of reserve bank credit continues to increase, reflecting further purchases of government securities by the Reserve Banks. Loans and investments of reporting member banks at the middle of July totaled \$18,475,000. There was a further decline in loans, while banks' investments in the United States government securities were \$90,000,000 larger than six weeks earlier.

Bond Prices

Recovery of prices in the bond market since the first of June, when bonds touched extreme lows, has paved the way for banking houses to bring out new issues. The levels of prices in bonds are very nearly, if not quite, back to the April figures.

Dow-Jones averages show that high grade rail bonds have risen from the low point in May 9.89 points. The second grade rail group had gained 10.80. Public utilities in the last month gained nearly 6 points, while industrials gained 6.38 points.

Federal Home Loan Bank

The National Association of Real Estate Boards describes the new Federal Home Loan Bank Act as a fundamental measure and as one of the most important steps ever taken with respect to real estate and home ownership. According to their view it promises substantial aid in long-term credit for the home owner and should stabilize the value of existing homes, at the same time strengthening materially the general real estate situation.

The National Association threw its full strength behind the enactment of this measure. It provides for eight or twelve regional discount banks to be set up as soon as practicable, with initial capital to be subscribed by the Federal Treasury of \$125,000,000. The minimum capital of each bank will be \$5,000,000. The governing board is to determine the number of home loan banks and set the boundaries of each bank's territorial jurisdiction.

Building and loan associations; savings and loan associations; cooperative banks; insurance companies and savings banks are among those eligible as borrowers.

The individual bank management is to be in the hands of 11 directors, residents of the various districts in which the regional banks may be established.

Critics of the measure fear that this is another Government bureau which will set up an expensive establishment and not be practically valuable as a relief in the present situation of burdensome mortgage debt, which holders of mortgages in many instances, are unable to pay. Its advocates, however, take the opposite view. They regard it as a wholly constructive measure that will prevent foreclosures and many of

the unfortunate instances of the recent past, which have deprived homeowners of their homes. It is also expected that it will stimulate home building. Real estate men and builders and supply material people claim there is marked shortage in the homes needed in many states at present.

National Bank Currency

Comptroller of the Currency Pole is quoted as saying that the expansion in National banking currency of \$995,000,000, which is provided for in a rider to the Home Loan Bank bill, "runs counter to the general plan established through the Federal Reserve Act, which is intended gradually to do away with an inflexible bond-secured currency and represents a backward step in currency and banking legislation."

To Aid Home Owners

The Atlanta Constitution comments on the recent announcement of the Bank of America in San Francisco, that it would accept applications to aid people in the construction and ownership of small homes as a step which, if taken by all the banks of the nation would have a far-reaching effect in overcoming unemployment and put more money into circulation. They refer to the announcement as "basic soundness of action" and urge that it be extended "to aid those of moderate means who can now secure a home at unprecedented low cost".

Steel Preferred Dividend

Financial markets were gratified by the declaration of the quarterly dividend of \$1.75 per share on preferred stock of the U. S. Steel Corporation. This payment requires \$6,300,000, and the decision to pay it was accompanied by a warning from the directors that in view of the huge draft which has been made upon surplus during the unprofitable operations of the past several months, "it is apparent that improvement in the business and earnings must in the future determine dividend action on the preferred stock."

The Government in Business

The United Press, in one of its dispatches recently declared the United States government is a partner in American business to the extent of \$3,000,000,000, and has \$4,000,000,000 more ready to invest. In addition to this, the United States exercises through the Federal Reserve System supervision of the nation's banking structure, has a paternal interest in a half billion dollar mortgage on agriculture held by the joint stock land banks, and has written \$3,000,000,000 worth of insurance on the lives of world war veterans.

The first investment by the government in business was \$50,000,000 appro-

riated in 1916 for the U. S. Shipping Board. Vast expansion came with the Agricultural Marketing Act and the appropriation necessary; also through the more recent Reconstruction Finance Corporation and the Home Loan Discount Bank.

The following advances have so far been made:

Reconstruction Finance Corporation	\$1,054,814,486
Aids to Agriculture (loans Farm Board operations, etc.)	1,848,841,200
Aids to Shipping (Shipping Board operations)	192,674,000
Total	\$3,096,329,686

Shareholders Increasing

A markedly significant fact in connection with the shares of large corporations has been noted. Forty-eight of the corporations listed on the New York Stock Exchange report that increase in the number of their shareholders among people holding less than 100 shares, has been 44 per cent.

The New York Herald Tribune, referring to this, says: "It means that several million Americans of relatively small means are now capitalists, with more entering the class every day, and also that an increasing proportion of the stock of these big corporations is going into the hands of men and women who will not gamble with it, but will take a greater interest in the affairs of the companies and the goods they sell." It is strikingly significant as showing faith, on the part of small investors, in our industrial fabric and the companies who are largely responsible for our industrial welfare.

Real Estate Activity

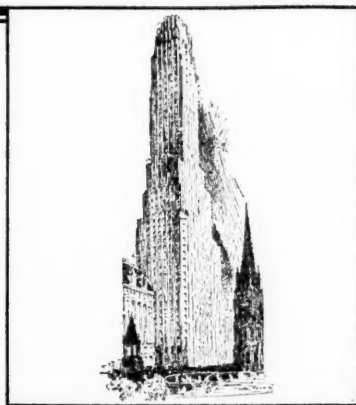
Real estate activity has been at the lowest level since 1924, when statistical records began to be compiled on a national scale.

Du Pont Company Report

For six months ended June 30, 1932, total income of E. I. du Pont de Nemours & Company, Wilmington, Del., was \$14,726,898, according to the company's semi-annual report. This consisted of \$4,861,939 net income from operations after depreciation; \$7,484,000 dividends from General Motors investment, and \$2,380,959 income from miscellaneous and marketable securities, etc. After deducting Federal income tax of \$488,885 and interest on bonds of subsidiary companies of \$35,592, there remained net income of \$14,202,421. Deducting dividends on debenture stock of \$3,259,348, there remained for common stock, including the company's equity in undivided profits or losses of controlled companies not consolidated, \$10,962,167, or \$1.01 a share on 10,878,989 shares, the average number outstanding during the period. This compares with \$2.24 a share for the corresponding period last year on 11,052,174, the average number outstanding. Total assets of the company amounted to \$601,898,590, as of June 30, 1932, and current assets to \$100,058,988. Current liabilities amounted to \$9,452,068, making a ratio of current assets to current liabilities of 10.6. Surplus as of June 30, 1932, was \$180,813,406, compared with \$186,050,164 at March 31, 1932.



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Building Codes

Building code revisions are progressing slowly in several cities where intensive work was done by the Concrete Reinforcing Steel Institute and its members some time ago. The American Concrete Institute building code is being considered as the standard in many revisions under consideration.

New Gravity Base Station

A new gravity base station for the entire United States and its possessions has been established in the basement of the new Commerce Building, Washington, by the Coast and Geodetic Survey.

The value of gravity at the base station is 980.-113 gals. This value corresponds to an acceleration of gravity of about 32.156 feet per second squared.

Gravity data are necessary for the accurate measurement of the curvature of the earth, without which it would be impossible to make surveys over large areas wherein the curvature of the earth must be considered. Such data are also of importance in studying the earth's crust, with special reference to the kinds of materials composing it and whether it is in equilibrium.

Management Engineers Program

Officers of the Association of Consulting Management Engineers, 122 East 42nd Street, New York, have laid out a program of group activity which has two major objectives: The promotion of a better understanding of professional management engineering as an aid to management and the upholding of high professional standards among those rendering management engineering service.

A. S. M. E. Nominations

The Nominating Committee of the American Society of Mechanical Engineers has presented the following candidates for offices for 1932-33:

For president, A. A. Potter, dean of the Schools of Engineering of Purdue University.

For vice-presidents, James D. Cunningham, president of the Republic Flow Meters Co., Chicago; Harold V. Coes, manager of the Industrial Department of Ford, Bacon & Davis, Inc., New York; and C. F. Hirshfield, chief of the Research Department, Detroit Edison Co.

For the office of manager of the Society, Alex D. Bailey, superintendent of generating stations, Commonwealth Edison Co., Chicago; John A. Hunter, professor of mechanical engineering, University of Colorado; and R. L. Sackett, dean of the School of Engineering, Pennsylvania State College.

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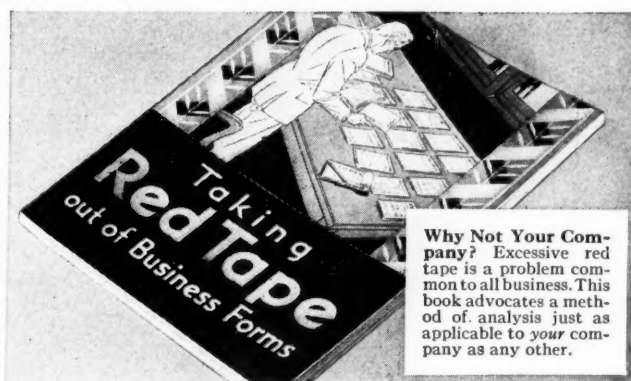
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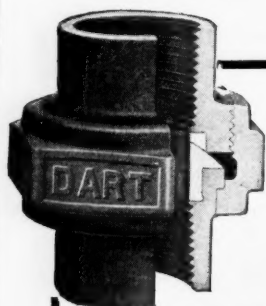
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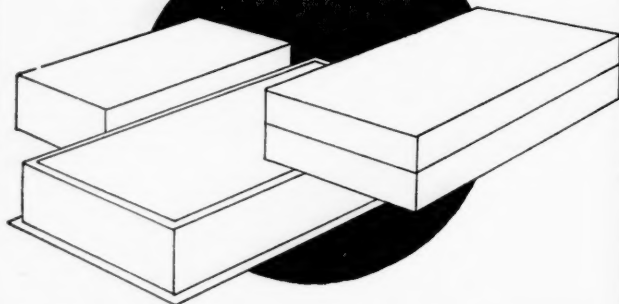
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*An actual incident in
Layne history.*

“

”

ترى حسیرت اسدیو *

¶ Tozeur is an oasis in the Sahara desert. One hundred miles of scorching sand lie between it and the desert's edge.

¶ It is older than tradition and as hot as the place Mohammed said was reserved for unbelievers.

¶ To Tozeur, on a commission from the French government, went Layne hydrological engineers to build a new water system to replace the old and dangerous, fever-laden supply.

¶ They finished the first of five new Layne wells. A Layne pump was spouting clean, cool, pure water that came from a thousand feet below the desert.

¶ Selim Ben Yahya, who had led camel caravans across the desert more times than there were hairs in the beard of the Prophet, tasted the water.

¶ His grin spread until it threatened to engulf his own white beard.

* "WATER OF HEAVEN!" he said.

¶ "What do you mean—'water of heaven?'" one of the engineers asked him.

¶ "Did not Mohammed himself say that heaven is a place of sweet water?" Selim explained.

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AUGUST NINETEEN THIRTY-TWO

PROPOSALS

BOND ISSUES BUILDINGS
PAVING GOOD ROADS

PUBLICATION DAY—About the fourth of each month.
FORMS CLOSE—Two days before publication day.

As the MANUFACTURERS RECORD is issued monthly our DAILY CONSTRUCTION BULLETIN is available for the publication of advertisements received after the forms close for the MANUFACTURERS RECORD and when the next issue would be too late to be of service.

Bids close August 17, 1932.

Arlington Memorial Bridge Commission, Office of the Executive Officer, Washington, D. C. Sealed bids, in duplicate, will be received in this office until 11:00 A. M., Eastern Standard Time, August 17, 1932, and then publicly opened in Room 1615 Navy Building, for furnishing all labor and materials and performing all work in connection with the construction of the pavement for the Memorial Avenue leading westward from the Boundary Channel Bridge to the Memorial Entrance to the Arlington National Cemetery at the west end of the Arlington Memorial Bridge project. Approximate quantities of the major items of work are in part as follows: scrubbed surface reinforced concrete pavement 8 to 10 inches thick, 14,000 square yards; reinforced concrete curb and gutter, including the setting of granite curbstones to be furnished by the Government, 4300 linear feet; grading, including both cut and fill, 4500 cubic yards; also drainage system consisting of catch basins, manholes and miscellaneous metal and vitrified pipe. Further information upon application Room 1031 Navy Building.

Bids close August 9, 1932.

TREASURY DEPARTMENT, office of the supervising architect, Washington, D. C., July 12, 1932.—SEALED BIDS, in duplicate, subject to the conditions contained herein, will be publicly opened in this office at 3 p. m., August 9, 1932, for furnishing all labor and materials and performing all work for the construction of the U. S. post office, etc., at Auburn, Ala. The prevailing rate of wage shall be paid all laborers and mechanics employed on the project as provided in the Act of March 3, 1931 (Public No. 798). Drawings and specifications, not exceeding three sets, may be obtained at this office in the discretion of the supervising architect by any satisfactory general contractor, and provided a deposit of \$15.00 is made for each set to assure its prompt return. One set will be furnished builders' exchanges, chambers of commerce or other organizations who will guarantee to make them available for any subcontractor or material firm interested and to quantity surveyors, provided a deposit of \$15.00 is made to assure its prompt return. Checks offered as deposits must be made payable to the order of the Treasurer of the United States. Cash deposits will not be accepted. JAS. A. WETMORE, Acting Supervising Architect.

Bids close August 11, 1932.

TREASURY DEPARTMENT, office of the supervising architect, Washington, D. C., July 12, 1932.—SEALED BIDS, in duplicate, subject to the conditions contained herein, will be publicly opened in this office at 3 p. m., August 11, 1932, for furnishing all labor and materials and performing all work for the construction complete of the U. S. post office, etc., at Jeannette, Pa. The prevailing rate of wage shall be paid all laborers and mechanics employed on the project as provided in the Act of March 3, 1931 (Public No. 798). Drawings and specifications, not exceeding three (3) sets, may be obtained at this office, in the discretion of the supervising architect, by any satisfactory general contractor, and provided a deposit of \$15.00 is made for each set to assure its prompt return. One set will be furnished builders' exchanges, chambers of commerce or other organizations who will guarantee to make them available for any sub-contractor or material firm interested and to quantity surveyors, provided a deposit of \$15.00 is made to assure its prompt return. Checks offered as deposits must be made payable to the order of the Treasurer of the United States. Cash deposits will not be accepted. JAS. A. WETMORE, Acting Supervising Architect.

Bids close August 9, 1932.

Bridges

DEPARTMENT OF PUBLIC WORKS
STATE OF MARYLAND
STATE ROADS COMMISSION

NOTICE TO CONTRACTORS

Baltimore, Md.
SEALED PROPOSALS for construction of bridges as follows:

Garrett County, Contract G-76-1-611—Structural steel truss superstructure (single 133 ft. 0 in. span, 40 ft. 0 in. roadway) for bridge over Castleman River on National Pike near Grantsville

Howard County, Contract Ho-120-311—Single 28 ft. 3 in. span, I-beam bridge with timber floor at entrance to Dugan property on Elkridge relocations

will be received by the State Roads Commission at its offices, Federal Reserve Bank Building, Calvert and Lexington Sts., Baltimore, Maryland, until 12 M. on the 9th day of August, 1932, at which time and place they will be publicly opened and read. PREQUALIFICATION OF BIDDERS REQUIRED.

Bids must be made upon the blank proposal form which, with specifications and plans will be furnished by the Commission upon application and cash payment of \$1.00, for each separate project, as hereafter no charges will be permitted.

No bids will be received unless accompanied by a certified check, payable to the State Roads Commission of Maryland, as required by Sec. 6, Chapter 539, Acts of 1931, of the amount as set forth in the proposal form.

The successful bidder will be required to give bond, and comply with the Acts of the General Assembly of Maryland, respecting contracts.

The Commission reserves the right to reject any and all bids.

BY ORDER of the State Roads Commission this 26th day of July, 1932.

G. CLINTON UHL, Chairman.
L. H. STEUART, Secretary.

Bids close August 9, 1932.

Maryland Highway Work

DEPARTMENT OF PUBLIC WORKS
STATE OF MARYLAND
STATE ROADS COMMISSION

NOTICE TO CONTRACTORS

Baltimore, Md.
SEALED PROPOSALS for building two sections of State highway as follows:

Baltimore County, Contract B-254-411—One section of State highway along the Reisterstown Road from end of contract B-253 at Owings Mills to Reisterstown for a distance of 3.76 miles (Concrete Base and Concrete Headers)

Charles County, Contract Ch-122-82—One section of State highway from Bryantown toward the Waldorf-Gallant Green Road for a distance of 1.0 mile. (Gravel)

will be received by the State Roads Commission at its offices, Federal Reserve Bank Building, Calvert and Lexington Sts., Baltimore, Maryland, until 12 M. on the 9th day of August, 1932, at which time and place they will be publicly opened and read. PREQUALIFICATION OF BIDDERS REQUIRED.

Bids must be made upon the blank proposal form which, with specifications and plans will be furnished by the Commission upon application and cash payment of \$1.00, for each separate project, as hereafter no charges will be permitted.

No bids will be received unless accompanied by a certified check, payable to the State Roads Commission of Maryland, as required by Sec. 6, Chapter 539, Acts of 1931, of the amount as set forth in the proposal form.

The successful bidder will be required to give bond, and comply with the Acts of the General Assembly of Maryland, respecting contracts.

The Commission reserves the right to reject any and all bids.

BY ORDER of the State Roads Commission this 26th day of July, 1932.

G. CLINTON UHL, Chairman.
L. H. STEUART, Secretary.

Bids close August 3, 1932.

U. S. Engineer Office, Rock Island, Illinois. Sealed proposals, in duplicate, will be received until 2:30 P. M., August 3, 1932, and then publicly opened, for furnishing all plant, labor and material for, and supplying, assembling and installing the following complete and ready for operation, and the necessary concrete foundations:—lock operating machinery for two parallel locks, power house equipment, and electric power and control system for Lock & Dam No. 15, Mississippi River. Further information on application.

Bids close August 23, 1932.

Delaware Highway Work

Dover, Del.

Sealed proposals will be received by the State Highway Department, at its office, Dover, Del., until 2:00 o'clock P. M., Eastern Standard Time, August 23, 1932, and at that place and time publicly opened for contracts involving the following approximate quantities:

CONTRACT 209A

PAVING DUAL ROAD

Farnhurst-Rogers Cor.—2.168 Mi.
18,000 Cu. Yds. Excavation
400 Tons Base Course
9,450 Cu. Yds. Concrete Pavement
5,400 Lin. Ft. Expansion Joint
150 Tons Bituminous Surface Course
10 Cu. Yds. Class A Concrete
200 Lin. Ft. 15" C. M. Pipe
200 Lin. Ft. 15" R. C. Pipe
100 Lin. Ft. 18" R. C. Pipe

CONTRACT 258

Washington Street, Wilmington—2900 Ft.
1,000 Cu. Yds. Excavation
10,000 Cu. Yds. Borrow
2,100 Cu. Yds. Concrete Pavement
or 2,100 Cu. Yds. Concrete Pavement (central mix)

1,000 Lin. Ft. Expansion Joint
750 Cu. Yds. Concrete Base Course
600 Tons Bituminous Surface Course
410 Cu. Yds. Class A Concrete
28,000 Lbs. Reinforcement
1,300 Lin. Ft. Parkway Curb
1,000 Lin. Ft. Concrete Curb
2,200 Lin. Ft. Cable Guard Rail
12 End Post Attachments
3,000 Lin. Ft. Wood Shoulder Curb

CONTRACT 259

Surface Treatment—40.0 Miles
100,000 Gallons Asphalt Surface Treatment.

CONTRACT 259A

Stone Chips For Surface Treatment
4,500 Tons Stone Chips

Above and subsequent contracts will be governed by the 1932 Specifications.

Performance of contract shall commence within ten (10) days after execution of the contract and be completed as specified.

All labor employed on these contracts shall be legal residents of the State of Delaware, and special provisions for use of machinery is provided in each proposal.

Monthly payments will be made for 90 per cent of the construction completed each month.

Bidders must submit proposals upon forms provided by the Department.

Each proposal must be accompanied by a surety bond, certified check, or money to the amount of at least ten (10) per centum of the total amount of the proposal.

The envelope containing the proposal must be marked "Proposal for the construction of State Highway Contract No. _____"

The contract will be awarded or rejected within twenty (20) days from the date of opening proposals.

The right is reserved to reject any or all bids.

Complete sets of plans and specifications may be obtained after August 15, 1932, upon receipt of two dollars (\$2.00) for each contract, which amount will not be refunded.

STATE HIGHWAY DEPARTMENT

Bids close August 16, 1932.

DEPARTMENT OF THE INTERIOR, Washington. Sealed proposals in duplicate will be received at the Department of the Interior until 2 o'clock p. m., Tuesday, August 16, 1932, for furnishing all labor and materials for constructing at Saint Elizabeth's Hospital, Washington, D. C., one male receiving building, and the moving, relocating and remodeling of shops building and T. B. buildings Nos. 1, 2 and 3, including roads, retaining walls, walks, grading and drainage. This work will include excavating, reinforced concrete construction, hollow tile, brick work, cut stone work, granite, architectural terra cotta, marble work, floor and wall tile, terrazzo floors, linoleum floors, miscellaneous struc-

tural and ornamental metal work, steel sash, steel stairs, tile, metal and built-up roofing, metal lathing, plastering, carpentry, laundry chutes, metal weather strips, insect screens, window shades, painting, glazing, hardware, plumbing, heating and ventilating, electrical work and outside service connections. Bids will be considered only from individuals, firms or corporations possessing satisfactory financial and technical ability, equipment and organization to insure speedy completion of the contract, and in making awards the records of bidders for expedition and satisfactory performance on contracts of similar character and magnitude will be carefully considered. Drawings and specifications may be obtained upon application to the Construction Service, Veterans' Admin-

istration, Room 764 Arlington Building, Washington, D. C. While no deposit will be necessary, the return of the drawings within ten days after opening of bids will be required. Special attention is invited to requirements of the act of March 3, 1931, regarding rate of wages, set forth in the specifications. The entire work must be completed within 300 calendar days. The right is reserved to reject any or all bids, waive technical defects, accept one part and reject the other as the interests of the Government may require. Proposals must be securely enveloped, marked "Proposal for construction of male receiving building, Saint Elizabeth's Hospital," and be addressed to the Secretary of the Interior, Washington, D. C. JOS. M. DIXON, Acting Secretary.

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Less than 100 lines 30 cents a line
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VIRGINIA COLONIAL ESTATE. Spotsylvania Co. Rare old brick mansion, 240 acres, \$7500. Game preserve, 600 acres near wild duck waters, \$5500. W. T. BAILEY, Suffolk, Va.

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HAIR PIN—Wanted manufacturer to make and market newly patented invisible type wire hair pin. Holds hair secure, easy to insert. Particulars, write No. 9197, care of Manufacturers Record, Baltimore, Md.

PUBLIC SALE—Scheller Brothers, 1314 acres timber land, band mill and equipment, including short line railroad, by J. W. Harman and W. K. Pritt. Special Receivers, August 13, 1932, at one o'clock P. M., Court House, Parsons, West Virginia. Sale on terms. Splendid opportunity for lumbermen.

MANUFACTURERS—Sell or lease pat'd. MACHINERY GUARD rights. Meets I.S.S. requirements. Sheet metal. Inexpensive. Perfected. Practicable. In use. Little competition. Success assured. Large market in South. Any reasonable terms accepted. No. 9199, care of Manufacturers Record, Baltimore, Md.

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SALESMAN, experienced in calling on architects, engineers, building supply, lumber, industrial trade, wishes to make connection with reputable manufacturer. Age 37, married, good references, successful record. No. 9200, care Manufacturers Record.

Men Wanted

IF YOU ARE OPEN to overtures for new connection and qualified for a salary between \$2500 and \$25,000, your response to this announcement is invited. The undersigned provides a thoroughly organized service of recognized standards and reputation, through which preliminaries are negotiated confidentially for positions of the caliber indicated. The procedure is individualized to each client's personal requirements, your identity covered and present position protected. Established twenty-two years. Send only name and address for details.

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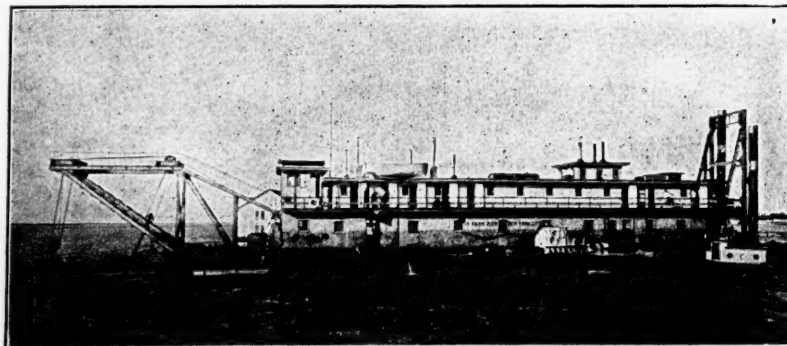
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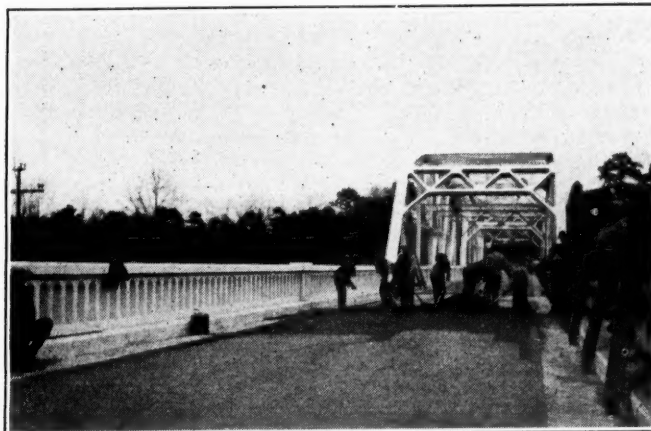
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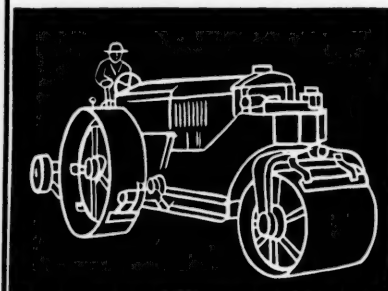
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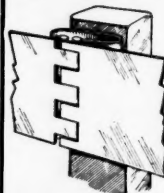
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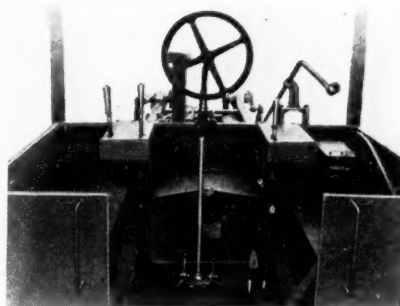
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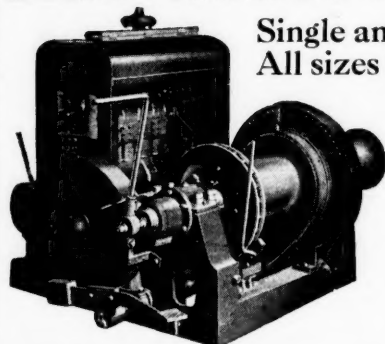
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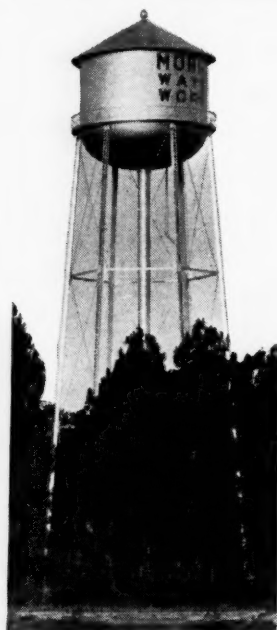
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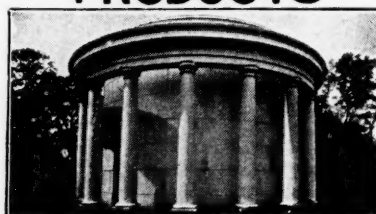
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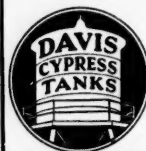
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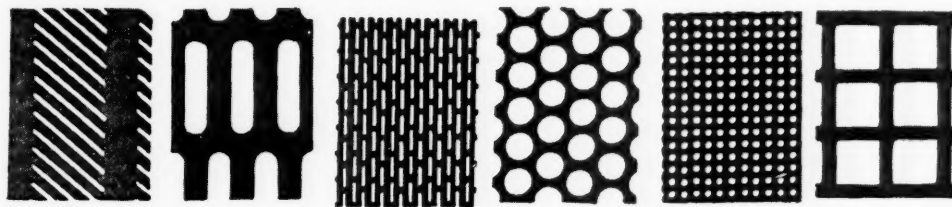
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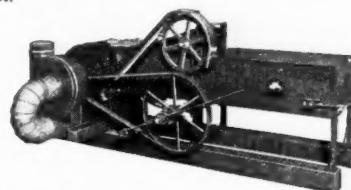
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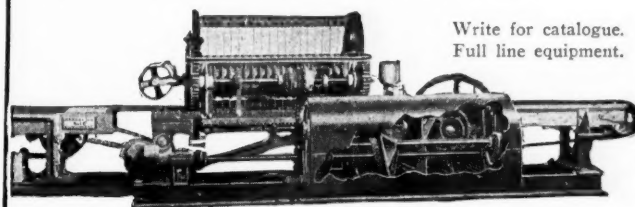
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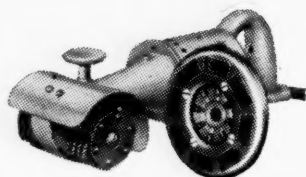
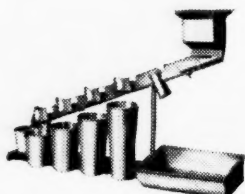


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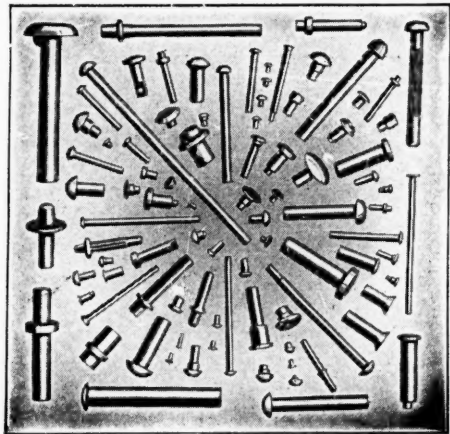
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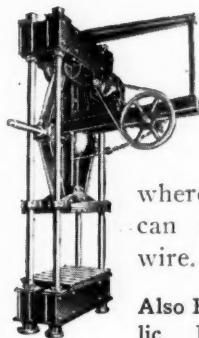
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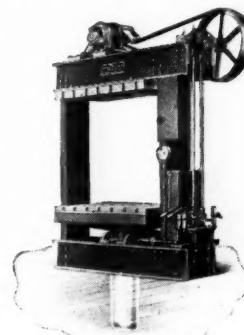


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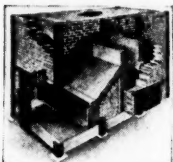
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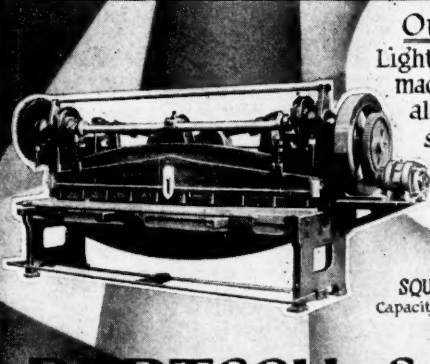
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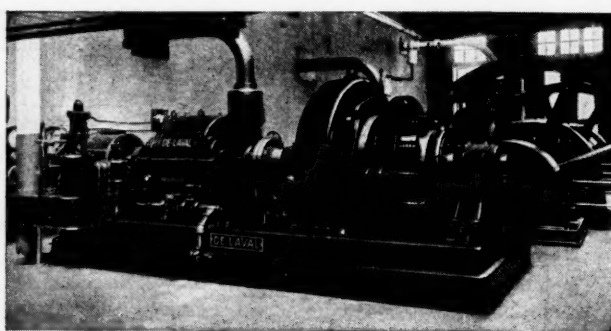
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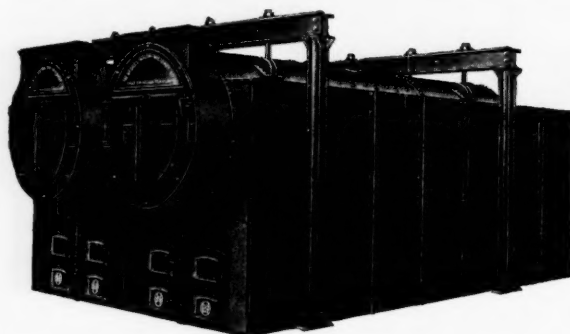
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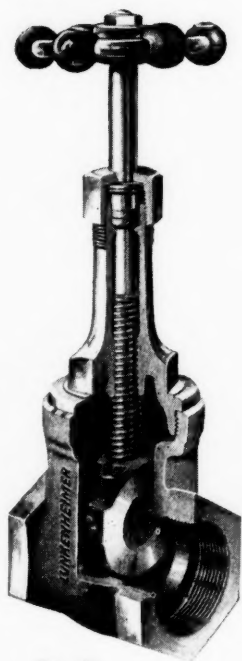


Fig. 427
Double Disc
150 lb. W. S. P.

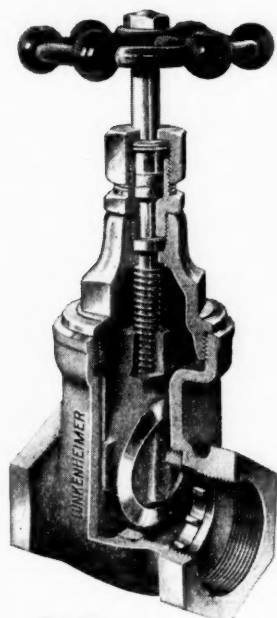


Fig. 768
Wedge Disc
200 lb. W. S. P.

Figs. 427 and 768 BRONZE Gate Valves

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Figs. 427 and 768 are made of a bronze composition developed particularly for valve service. Wall sections of extra thickness and large hexagons resist distortion. Proper seating of discs is insured by accurate alignment of moving parts.

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58 Pine Derivatives Featured

The diversity of products which may be obtained from pine stumps by the steam and solvent process has been strikingly shown by the Hercules Powder Company Experiment Station at Wilmington, Del. A display consisting of a complete set of naval stores samples was arranged by the Experiment Station staff and exhibited at the recent convention of the Georgia Forestry Association. The display contained 58 samples, all derivatives of the pine stump wood. Some are standard pine products; others are new and in process of development on a semi-commercial scale, while a few represent purely laboratory products.

As arranged by Hercules engineers, the following specimens featured the display:

Standard Basic Products — Stump wood, fresh chips, crude turpentine, drop solution, P. W. turpentine, Yarmor pine oil, rosin residue, FF wood rosin, spent chips.

Derivatives and Components from Crude Turpentine—Pinene, dipentene No. 122, alpha-terpinene, turpinolene, pinene hydrochloride, fenchyl alcohol from pine oil, borneol from pine oil, alpha-terpineol from pine oil (denaturant), anethol from pine oil, B-3 reagent, delustering reagent, dark dipolymer, distilled dark dipolymer, solvenol, Heco pine oil, sulfurized pine oil, hercosol 5 (lacquer solvent), hercosol 80 (lacquer solvent), terposol 30 (wetting-out and emulsifying agent), pale dipolymer, camphor, fenchone, bornyl acetate, terpinyl acetate, tech, terpineol, dibornyl phthalate, soluble pine oil disinfectant, termex (wood impregnation agent), daintex (detergent), terpin hydrate.

Rosin and Derivatives—I wood rosin, B wood rosin, commercial abietic acid, abietic acid crystals, abietic acid fused, sodium abietate (dry size), neutroyl, neutroyl H (delustering agent), abalyn (a plasticizing rosin), ester gum, ethyl abietate, lime I wood rosin (6 per cent), acid sodium abietate, refined wood rosin grade 7A, naval stores synthetic rosin.

Products of Spent Chips—Wall board, alpha cellulose, nitrocellulose solution (from alpha-cellulose), and rayon.

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Now the cry for water is insistent and loud.

Fig. 50 still does the cake walk, but the steam head is out of step with modern progress. The COOK Deep-Well Turbine, Type WP, self-oiling, weatherproof, adaptable, durable, vibrationless, with capacities up to 3000 G.P.M. is one answer to today's cry; the COOK Wire-Wound Strainer, for big wells up to 40 inches in diameter, is the other answer.

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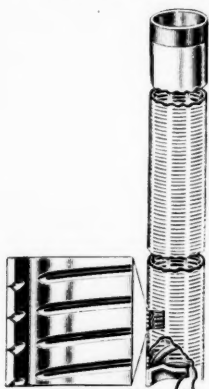
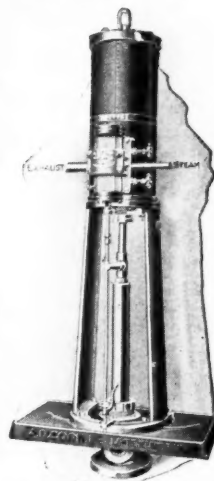


Fig. 50



Cook Turbine



Cook Steam Head

A. D. COOK, Inc.

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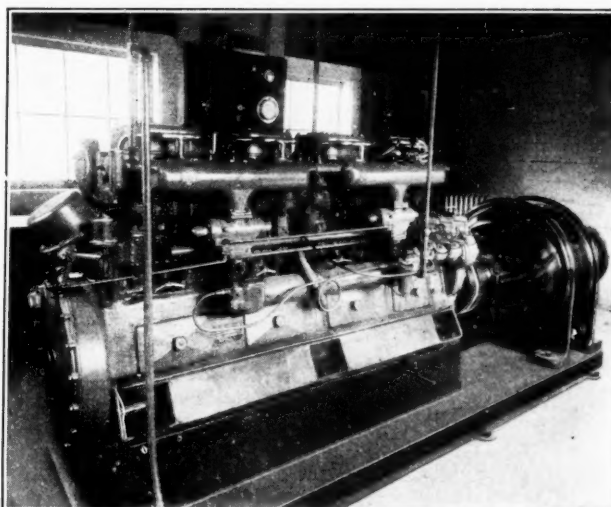
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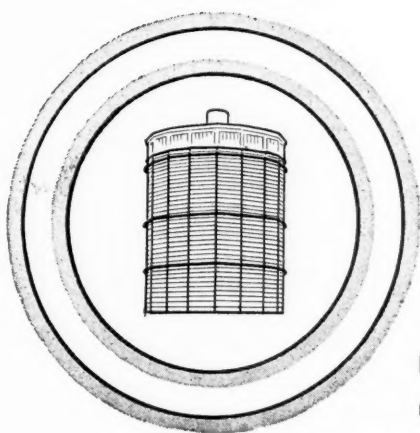
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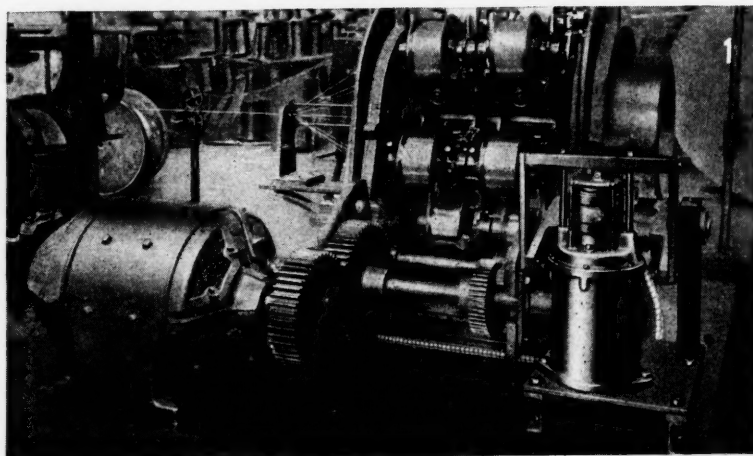
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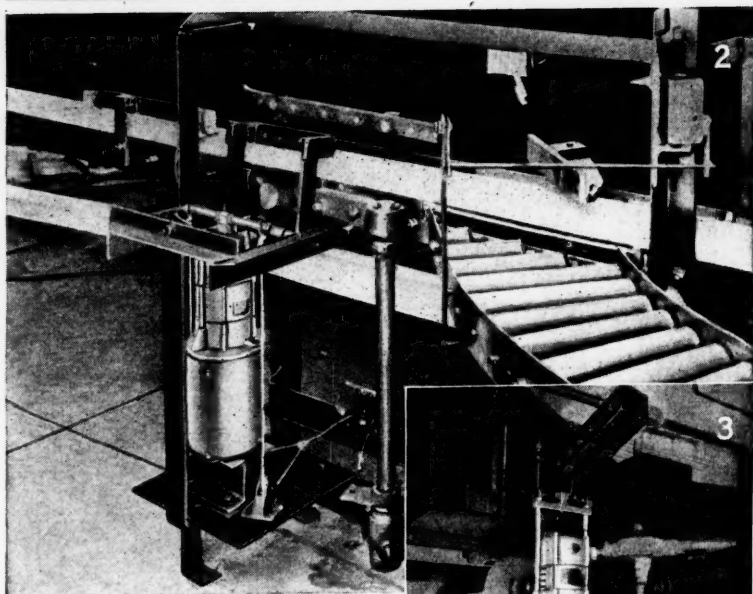
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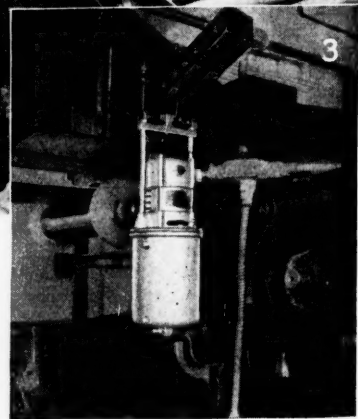
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Possibly you may not be interested in wire stranding, in cotton pickers, or in conveyors, but these are just a few of the many Thrustor applications discussed in our new Bulletin GEA-1262B. If you haven't a copy, your nearest G-E office will be glad to send you one.

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